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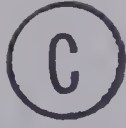
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FUTURE ISSUES IN COORDINATING ALBERTA

POST-SECONDARY EDUCATION

by



RICHARD HECTOR MARTIN

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled "Future Issues in Coordinating Alberta Post-Secondary Education," submitted by Richard Hector Martin in partial fulfilment of the requirements for the degree of Master of Education.

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R. H. M.

ABSTRACT

The study sought to (1) identify future problems, issues, or developments which may affect the coordination among Alberta post-secondary educational institutions; and (2) determine the times at which these problems or developments in coordination will either occur or will reach such proportions that they will be clearly recognizable by a majority of people affected by them.

A modified form of what is known as the Delphi technique was used as the method for collecting data in the study. The Delphi technique was designed to solicit opinions from fifty-two respondents selected for their recognized expertise in areas related to the coordination of Alberta post-secondary education. In four sequential questionnaires, the participants (1) identified future issues in coordinating Alberta post-secondary education, (2) estimated the probable date of occurrence for (1), (3) provided reasons for their expressed opinions, and (4) re-estimated the probable date of occurrence of the identified issues in light of the reasons supplied by fellow-respondents.

The findings of the study indicate that nearly three-quarters of the perceived future issues facing Alberta post-secondary education are estimated, by respondents, to occur by 1980. The issues identified include the following: establishment of a national association of community-junior colleges, emergence of an Alberta commission for higher education, provincial master plan for post-secondary and adult education, Boards of Governors for the three agricultural and vocational colleges

and the two institutes of technology, multiple points of entry from secondary education to post-secondary education, the three agricultural and vocational colleges and the two institutes of technology become community colleges, and fourteen years free public education.

A few of the conclusions of the study were that (1) Boards of Governors will persist in the future, (2) a need exists for formal communication between the Alberta Universities Commission and the Alberta Colleges Commission, and (3) there is increasing concern for accountability in education.

Three speculations are given following the conclusions:

(1) proliferation of colleges in Alberta for the seventies, (2) Alberta's fifth university an open university, and (3) increasing adoption of the quarter system of academic-year scheduling.

Finally, some recommendations emerge from a consideration of the findings. Two of the recommendations are concerned with the following: (1) an educational (academic) master plan for post-secondary education and adult education, and (2) a planning body such as the Alberta Commission on Educational Planning be established for continuous operation.

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Chapter 1

INTRODUCTION

The reliability with which the future can be predicted is a matter of degree. The immediate twenty-four-hour future can be predicted with a reasonable degree of certainty (for example, our daily living). The future involving a year hence is afflicted with a noticeable degree of uncertainty (for example, the projected budget, for one year, of the provincial government). As the period of concern is moved further and further into the future, " . . . uncertainties multiply, confidence in prediction is decreased, and the scientific theories and techniques of forecasting give way to intuitive judgment." (Helmer, 1966:44). This is not to say that planning for the distant future is futile. On the contrary, " . . . trends of the next decade are often accurate enough to be of demonstrably practical use." (Helmer, 1966:44).

The fact remains that trend predictions, based on intuitive judgment, do affect current planning decisions (for example, in the area of education). Until more sophisticated methods of forecasting become available, the use of intuitive forecasts is unavoidable. The question then becomes, how can we obtain this intuitive judgment as effectively as possible from persons who are recognized experts in the area of concern?

The study at hand employed a modification of the Delphi technique for the systematic solicitation of expert opinions. Both the method of selecting the experts and of gathering data are explained in Chapter 3.

Briefly, the technique is one in which sequential questionnaires are interspersed with information input and opinion feedback. The information, in this case, refers to data related to the coordination of Alberta post-secondary education.

Hence, the orientation of the study is the future, the method of collecting data is called the modified Delphi technique, and the subject matter of the thesis is coordination of Alberta post-secondary education.

STATEMENT OF THE PROBLEM

This study attempted to identify problems of educational concern which may develop during the next few decades. More specifically, the problem involved an attempt to:

1. predict problems, issues, or developments which may affect the coordination among Alberta post-secondary educational institutions
2. determine the times at which these problems or developments in coordination will either occur or will reach such proportions that they will be clearly recognizable by a majority of the people affected by them.

SIGNIFICANCE OF THE STUDY

According to Katz (1969:3), the justification and purpose of research in education, as in other fields, is best when it anticipates the future. The future is concerned with what lies on the horizon and beyond and, although the future can only be anticipated, one can nevertheless make meaningful assertions about it. These assertions can be extrapolated from the present:

. . . the future will be largely shaped by the choices men make, or fail to make, and it will not be molded simply by technical forces . . . processes existing in the present can reveal some of the basic choices that will confront men over the next thirty years . . . social science should consider . . . the more active role of helping men to extend their visions. (Emery, 1967:217).

Hopefully, the findings and conclusions of this study (future issues in coordinating Alberta post-secondary education) will provide some guidance for long-range educational planners in helping them to "extend their visions."

In addition to this, the study provides information, concerning the coordination of Alberta post-secondary education, which may be of value to such bodies as the Alberta Department of Education, The Alberta Commission on Educational Planning, the Alberta Teachers' Association, the University General Faculty Councils, the Boards of Governors, the Alberta Universities Commission and the Alberta Colleges Commission.

To the best of the writer's knowledge, the present study is the only one of its kind ever conducted in Alberta or, as far as is known, in Canada; the study is needed because it can contribute to efficient decision-making in the field of coordination of Alberta post-secondary education.

DEFINITION OF TERMS

System

The term "system" refers to either the Alberta colleges system or the Alberta universities system; where the reference is not clear, it is specified.

Subsystem

"Subsystem" refers to a specific type of Alberta educational institution within a system; for example, the Alberta Institutes of Technology.

Post-Secondary Education

The term "post-secondary education" refers to education offered by the three universities, the two institutes of technology, the five public colleges, the three agricultural and vocational colleges, and a number of private colleges. It excludes any high school divisions of these institutions. "Post-secondary education" is used interchangeably with the term "higher education" in related research and literature; the same is true in this thesis as well.

LIMITATIONS

The effectiveness of the study in identifying future problems and their probable dates of occurrence was subject to the following limitations:

1. the knowledge and foresight of the population selected
2. the respondents' interpretation of particular words and statements submitted to them
3. the researcher's interpretation of respondents' replies
4. the possible change in respondents' attitudes over the four-month data-gathering period.

DELIMITATIONS

The study was delimited to:

1. the field of post-secondary education in the province of Alberta
2. an examination of those problems and issues identified by an exclusively Albertan population
3. educators (including former educators) and policy-makers in education.

ASSUMPTIONS

It was assumed that:

1. there are people who are knowledgeable in the field of coordination of Alberta post-secondary education
2. the people questioned by the researcher are knowledgeable in this field
3. these people can in fact identify future issues in the area of coordination of Alberta post-secondary education.

BRIEF OUTLINE OF THE THESIS

The thesis consists of five chapters. An introduction to the study is presented in Chapter 1. This is followed by a review of the related literature in Chapter 2. In Chapter 3, the research design is outlined: (1) the technique of selecting the respondents, (2) the method of obtaining commitment, (3) the method of collecting data, (4) the rate of return of the four instruments for the study, and (5) some characteristics of the population. Chapter 4 consists of (1) the predictions, and (2) the patterns of prediction of the population. In the concluding chapter, a concise summary of the thesis is provided. Next come the assessment of the methodology, the conclusions, some speculations, and the recommendations. This is followed by the bibliography and the appendix. The appendix has been included to provide additional sources of information about some of the topics covered in the five chapters of the thesis.

Chapter 2

REVIEW OF RELATED LITERATURE

The purpose of this chapter is to review the literature related to (1) coordination of post-secondary education, and (2) the future. Recent American experiences in coordinating post-secondary education are presented, followed by a discussion of Canadian patterns. The literature on the future includes sections on planning for the future and on methods of forecasting futures.

COORDINATION OF POST-SECONDARY EDUCATION

American Systems

Brumbaugh (1963:9) classified state-wide agencies for post-secondary educational coordination into three types: (1) single central governing and coordinating board, (2) voluntary coordinating body, and (3) intermediary coordinating board. These three types of organizations are briefly discussed below.

Single board. In theory, a board with complete governing powers could achieve the maximum coordination. However, Glenny (Wilson, 1965:90) suggests that:

The failure recently of the single board concept to gain acceptance among the states as the agency for state-side coordination is attributed chiefly to the general aversion to rigid centralization and also to the preference for the coordinating board The single board has been vigorously opposed by most educators, who see a leveling and averaging of all institutions under its control.

Voluntary coordinating body. This type of body has arisen after the state legislature orders one or threatens to establish a single governing board or some other coordinating agency with legal power. Glenny (Wilson, 1965:88) indicated that the Indiana Conference, established in 1951, had the longest history of any voluntary coordinating body in higher education and was thus considered the most successful. Until five years ago, these voluntary organizations were concerned almost exclusively with budget preparation and dividing legislative appropriations. They have now taken on added responsibilities in long-range planning and in program authorizations. Glenny (Wilson, 1965:88).

Is a voluntary system viable? McConnell (1966:83) pessimistically said that evidence in the United States " . . . indicates clearly that purely voluntary methods of coordination are no longer effective, and voluntary agencies are being superseded by those with status and authority."

Intermediary coordinating board. The intermediate board is quickly gaining in preference over all other methods of coordination in the United States. It is variously referred to as a coordinating board, a commission, a council, a committee, a super board, or a higher board.

Glenny (Wilson, 1965:91) explained why intermediary coordinating boards are preferred over both single boards and voluntary bodies;

The popularity of these agencies can be attributed to their ease of establishment by state legislation, to their desirability in the eyes of the institutions when compared to a single governing board, and to the improvement in quality of professional staffs and the resulting improvements in practices of coordinating agencies. Existing institutions and governing boards continue to operate. The coordinating board attempts to provide order and planning either by regulating directly certain phases of operations such as programs and budgets, or by advising the governing boards, legislature, and governor of desirable courses of action, or by both means.

An example of the popular intermediate board is the California Coordinating Council for Higher Education (CCCHE). It is the pioneer in state-wide coordination at the post-secondary level. The Council evolved out of the California Liaison Committee which has operated as a voluntary organization from 1951-1959. The CCCHE, formed in 1960, was made up of twelve members, three from each of the following groups: the University, the state and independent colleges, the junior colleges, and the general public. Falk (1968:204-205) quoted the following section of the California State Law in relation to the CCCHE:

The co-ordinating council shall have the following functions, advisory to the governing boards of the institutions of public higher education and to appropriate state officials: (1) review of the annual budget and capital outlay requests of the university and the California State Colleges, and presentation of comments on the general level of support sought; (2) advice as to the application of the provisions of this division delineating the different functions of public higher education and counsel as to the programs appropriate to each segment thereof, and in connection therewith shall submit to the Governor and to the Legislature within five days of the beginning of each general session a report which contains recommendations as to necessary or desirable changes, if any, in the functions and programs of the several segments of public higher education; and (3) development of plans for the orderly growth of public higher education and making of recommendations on the need for and location of new facilities and programs.

In 1968, eight years after the Council drew up the California Master Plan (for the years 1960-75), the chairman of the Master Plan Survey Team, Arthur Coons (1968:103), was asking whether

. . . the coordinating board or council be possessed of power, or should it be advisory only? Should it be statutory or in the Constitution? If possessed of too much power, it might easily in time become a single board, a superboard causing sublying segmental boards to lose status relatively and then some effectiveness. It is an error to assume that such a single board is necessarily the answer. The problems of coordination and adjustment often remain even after the single board has spoken.

Perhaps issues in coordinating higher education, as suggested by Coons, could be better understood by exploring some additional trends in coordination in the United States.

Major trends in coordination. The major trends in the United States in the field of coordinating post-secondary education are given by Glenny (Wilson, 1965:101-102) as follows:

1. The voluntary organization and single board approach for governance and coordination are no longer increasing in number; coordinating (super) boards are rapidly becoming the principal scheme for coordination of state systems.
2. Powers of the super boards vary; some are advisory only. These agencies are composed of most, if not all public members not directly connected with any public college or university.
3. Nonpublic institutions are usually given consideration in formulating state master plans.
4. Most agencies' chief functions have changed from budgeting to planning. The tools for implementing plans are largely in the budgets and program review. Use of computers has accelerated the trend toward more scientific studies.
5. Staffs are becoming larger, more professional, and better skilled in research techniques.
6. Many public institutions now exercise their autonomy within boundaries set by state plans in the form of law and/or coordinating agency policy.
7. The Federal Higher Education Facilities Act of 1963 appears to be stimulating better and more frequent state studies of building utilization. The Act also seems to be lending impetus for power to be given to a coordinating body concerned with both public and non-public institutions in the states.

Summary. American coordination of education at the post-secondary level is characterized by (1) an increasing number of intermediary boards (commissions, for example), and (2) a preoccupation, by these boards, with state-wide educational planning (usually implemented by use of budgets).

Canadian Patterns

The Canadian scene in post-secondary educational coordination is characterized by different, generally provincially inspired, patterns.

Higher education in Canada neither is nor ever has been all of a piece . . . the main support for higher education in Canada derives from government . . . and since constitutionally, education is a provincial rather than a federal responsibility, the crucial relationship is with the provincial government. (Harris, 1969:9-11).

However, for the purposes of this thesis, Canadian higher education will be divided into four main divisions: (1) the Atlantic provinces, (2) Quebec, (3) Ontario, and (4) the Western provinces. These geographical divisions are discussed below.

The Atlantic provinces. Since both the demography and the economics of the Atlantic provinces dictate close cooperation among these provinces, there is currently a trend in that direction. The universities of the provinces of Nova Scotia, New Brunswick and Prince Edward Island belong to the Association of Atlantic Universities (AAU) which was formed in 1964. (Sheffield, 1969:5). In the opinion of the AAU, a joint effort of the Atlantic universities will help to reduce unnecessary duplication and, in the long run, strengthen the individual universities. Sommers (Harris, 1965:31) explained the Association's over-all operation in this way:

The Association, which is financially supported by eleven universities and which has its own secretariat, operates through an executive council composed of the presidents of the member universities, and an advisory board on which each institution is represented

In spite of the existence of the AAU, there are provincial variations with respect to the coordinating agencies of the universities. The first province to be discussed is Newfoundland.

Newfoundland has only one university and hence relations between its university and the government are direct. The province's two technical institutes are under the jurisdiction of the provincial Department of Education.

The province of Nova Scotia has a University Grants Committee which was established to " . . . recommend annual financial support and measures that should be taken to assist in capital construction." (Somers, Harris, 1965:34).

The Committee was created in 1963 by the Universities Assistance Act. As far as the colleges are concerned, Campbell (1967:17) reports that " . . . no community college system presently exists in . . . Nova Scotia."

The coordinating agency in New Brunswick has more extensive functions than does the Nova Scotia University Grants Committee. In the fall of 1967, the New Brunswick Legislative Assembly passed the Post-Secondary Education Act establishing the New Brunswick Higher Education Commission. The First Annual Report of the Commission (1968:1) reported that the new coordinating body was developed " . . . to assist the future growth and development of all forms of post-secondary education in the province."

Similarly, in Prince Edward Island, the government created a commission in 1968; the relevant legislation was called An Act To Establish a Commission on Post-Secondary Education. The First Annual Report of the Prince Edward Island Commission on Post-Secondary Education (1970:24) quoted, from the Act, the reason for its establishment:

. . . to direct the planning and development of education at the post-secondary level for the Province of Prince Edward Island and to provide the youth of the Province with the educational opportunities necessary for them to fully participate in the advance of the Province and the Nation.

Thus, it is clear that there are differences (both at the university level and the college level) with respect to the patterns of coordinating post-secondary education in the Atlantic provinces.

Quebec. The second major division, Quebec, like the atlantic provinces, is moving quickly to meet the challenge of post-secondary educational demands. The Government of the Province of Quebec recently established a Council of Universities. The Council of Universities Act (1968:1) described its role in this way:

The principal function of the Council shall be to advise the Minister of Education regarding the needs of higher education and university research and to make recommendations to him regarding steps to be taken to meet such needs.

In addition to this, there exists in Quebec:

. . . a Conférence des recteurs et des principaux des universités du Québec . . . to provide a medium for communication and sometimes negotiation with (the) government agencies Another increasingly important task is to facilitate cooperation among the universities themselves. (Sheffield, 1969:5).

Quebec also has, at the present time, twenty-seven institutions called CEGEP (Collèges d'enseignement général et professionnel) which were established under the General and Vocational College Act of 1967. In connection with coordinating the colleges, Professor Whitelaw (1968:30) states, the Directorate of College Education was set up in the Quebec Department of Education " . . . to be ultimately one of coordination rather than direction in the authoritarian sense of the term" Campbell (1969:16-17) added that the colleges of Quebec:

. . . have established an organization apart from government called la Fédération des CEGEP whose aim is to facilitate growth in areas outside direct governmental jurisdiction.

Ontario. Moving West from Quebec to examine coordination agencies for post-secondary education, one finds that Ontario, unlike any other Canadian province, established a provincial Department of University Affairs; it was accomplished through the University Affairs Act of 1964. Provision was made in the Act to include a Committee on University Affairs. The Report of the Committee on University Affairs (1967:7-8) explained the role of the Committee as follows:

The most important function of the Committee on University Affairs relates to the formulation, for consideration by Government, of policies affecting all universities. The other principal task of the Committee is the provision of advice on levels of operating support needed, from year to year, and on the needs and priorities in

capital spending. The Committee is also concerned with such matters as new legislation, program development in universities, and the establishment of new institutions.

In other words, the Committee acts in response to requests from the Minister of the Department of University Affairs for advice on educational matters of concern, in response to representations from universities both singly and collectively (via a Committee of Presidents of Universities of Ontario), and on its own initiative.

Turning to colleges, Campbell (1969:11) indicated that all Ontario institutions falling within the provisions of The Department of Education Amendment Act 1965 of the Province of Ontario are called "Colleges of Applied Arts and Technology" (CAAT). The legislation, Campbell (1969:14) continues:

. . . included the creation of a fifteen-member council of regents appointed by the minister of education. The task of the council was to recommend appointments to the boards of governors of local colleges and to co-ordinate the colleges' development.

The word "development," as used above, is quite broad; the Canadian Education Association's paper on the Ontario Colleges of Applied Arts and Technology (1967:1) delineated the specific areas of the development of physical facilities and the development of curricula. In addition to this, the Council of Regents sets the fee schedules and sets a salary and wage scale for college personnel.

The other agency which coordinates and guides the efforts of the local board of governors for each college is the Applied Arts and Technology Branch. The Canadian Education Association's paper on the CAAT in Ontario (1967:2) outlines its tasks.

The Branch acts as the Administrative arm of the Minister in all matters pertaining to the colleges and works in close co-ordination with the Council of Regents However . . . the Branch is responsible for assessing the operating and capital budgets submitted by local boards and making recommendations to the minister.

Summarizing the Ontario situation, the "Directory of Universities and Colleges in Canada" (1969:27) affirms that, "as Canada's largest and richest province, Ontario provides the biggest, most expensive and most complex structure of post-secondary education."

It is interesting to note in conclusion that the Ontario government has set up a commission to advise the Minister of Education and University Affairs on the long-term plans for post-secondary education in the province. College Canada in an article entitled "Ontario to Study Post-Secondary Education" reports (September, 1969:1) that

The commission has been charged with the responsibility of studying current anticipated provisions for all post-secondary educational institutions in the province and outlining the patterns required for the future to ensure appropriate and orderly development to meet the needs of the province over the next two decades.

The Western provinces. The final division of Canada to be dealt with in this section of related literature is that of the Western provinces. Within this division, the provinces of Manitoba, Saskatchewan and British Columbia will be discussed first. This will be followed by a view of Alberta's approach to coordinating post-secondary education. Since Alberta's coordination agencies provide the major focus for this thesis, its treatment will be more extensive than that of the other three Western provinces.

It should be noted initially that the presidents of the Western Canadian universities have an informal organization to achieve communication and cooperation among themselves. In addition to this, the three prairie provinces operate an Interprovincial Committee on University Rationalization. (Sheffield, 1969:5).

The Legislative Assembly of the Province of Manitoba passed The Universities Grants Commission Act (1967:368) with the intent " . . . that

the Commission should restrict its activities to the fiscal arrangements of universities" However, further examination of the Act (1967:371) discloses that

The Commission shall study (a) the requirements of the province for post-secondary education at the universities and colleges . . . (b) the capacity of the universities and colleges to provide the other related matters as may be referred to it by the minister; and shall give advice and assistance to the universities and colleges in the preparation and implementation of plans

As for the Manitoba technical institutes, the "Directory of Universities and Colleges in Canada" (1969:32) stated that they " . . . are administered by the provincial department of Education."

Manitoba's provincial neighbor to the West, Saskatchewan, does not have a coordinating agency for post-secondary education. Sheffield (1969:5) posits that "relations between government and university are direct in Saskatchewan . . . because . . . there is but one university." Campbell (1969:14) reiterated the same idea as Sheffield with respect to Saskatchewan's community colleges:

A university-government committee has examined the development of higher education for that province. Recommendations have been made regarding the establishment of community colleges and some action has resulted.

The "Directory of Universities and Colleges in Canada" (1969:33) stated that Saskatchewan's two " . . . institutes of technology are administered by the Department of Education."

In Canada's most westerly province, British Columbia, there exist two boards whose purpose is established under the Universities Act (1963) to finance and coordinate higher education. Cocking (1969:55) described them this way:

The system is composed of two boards, an Advisory Board (financial) and an Academic Board, with a common chairman The Advisory Board ['s] . . . statutory power is to advise the government on the division of its university grants. The Academic Board['s] . . . statutory responsibility is with academic standards and the orderly development of the universities and colleges in British Columbia.

The Canadian Education Association's brief on British Columbia (1967:1) reported that the British Columbia Institute of Technology at Burnaby " . . . is a Provincial institution under the general direction of the Department of Education."

The provincial government in British Columbia has appointed a special committee called the Perry Committee " . . . to investigate the need for an improved system of financing and co-ordinating development of the three public universities. (Cocking, 1969:54).

The final province to be discussed with respect to coordinating post-secondary education is Alberta. According to Stewart (Carson, 1969:38), the organizational structure of Alberta post-secondary is as follows:

. . . the universities system is the system created under The Universities Act (1966); the colleges system is the system . . . created under The Colleges Act (1969). The two pieces of legislation provide for co-ordination within each system; and for articulation between the two post-secondary systems, and between each of them and the school system as provided for under The School Act (1952).

The agency in charge of coordinating the universities is called the Alberta Universities Commission. Its task, as cited by the "Register of board and standing committees" (1970:2), is

(1) To inquire into the financial needs of the universities of the Province of Alberta; (2) to advise the Government with regard to the granting of financial assistance for university purposes; (3) to act as an intermediary between the government and the universities and among the universities.

Stewart (Carson, 1969:42) elaborated on the Commission's monetary function:

. . . the universities are financed, from public funds, by an annual grant for operating purposes made to the Alberta Universities Commission It is a function of the Universities Commission to allocate the grant between the several (3) universities.

The approach for dividing the government grant is made by assigning weights which are roughly related to differences in costs. Stewart (Carson, 1969:42-43) noted that "formula financing" is the tool for allocating funds, according to which

. . . first year students in a number of programs have weight of one; upper year graduate students in Agriculture have a weight of eight. Departures from the application of the formula are made to recognize the special circumstances of "emerging" universities (Lethbridge); and "start up" grants are made to meet the cost of new, approved faculties.

The other post-secondary education system in Alberta, the colleges system, also has a coordinating agency, the Alberta Colleges Commission. Campbell (1969:13) sees its make-up and role as being

. . . a board consisting of nine members having wide regulatory powers in relation to the financial and other affairs of public colleges. Local college boards, which previously had been associated with school boards, became independent of them. Local boards of governors consist now of eight persons and include the college president, one member of faculty, and one student. The 1969 Act removes support by local taxation and provides funds from the provincial government. The funds are distributed through the Alberta Colleges Commission.

Provision has been made in the 1969 provincial legislation to include at a subsequent date the province's two institutes of technology and three agricultural colleges.

Kolesar (1967:3) explained the situation with respect to the institutes, and agricultural and vocational colleges in this manner:

Institutes of Technology are under the direct control of the Department of Education through the Division of Vocational Education. Agricultural colleges are directly under the Minister of Agriculture who exercises control through the Agricultural and Vocational Branch of the Department.

In order to assess what action is needed now to prepare for the future in education, the provincial government established the Alberta Commission on Educational Planning. One of its tasks includes long-range forecasting in the field of post-secondary education.

Some Alberta projections. The Alberta Universities Commission, in presenting projections in connection with coordinating Alberta post-secondary education, estimates a rise in student enrolment of 100% during the five-year period of 1968-69 to 1973-74: Stewart (Carson, 1969:36). Fast (1969:24) estimates that enrolments in Alberta's public non-univer-

sity post-secondary institutions will increase from 12,941 in 1968-69 to 30,608 in 1973-74. This represents an increase of 137% over a five-year period. As the numbers indicate, college enrolments will accelerate relative to university enrolments.

Stewart (Carson, 1969:37) interprets the trend toward increased enrolment as reflecting the fact that more and more high school graduates will be continuing their education. Fast (1969:5) suggests that if a single system of higher education were to be established in Alberta, it would have as one of its important functions " . . . to provide fourteen years of education to all Albertans who desire it."

Another trend is to greater diversification of programs in Alberta universities and colleges. Stewart (Carson, 1969:37) continues,

The trend is related to the expansion of knowledge and technology, the resulting changes in social demands, and the response of students and institutions to these demands as they become apparent Consideration must be given in the post-secondary system to the kind of educational experiences which will prove most helpful in developing the capacity for re-orientation to new and unexpected requirements.

Community college trends across Canada. Campbell (1969:17-19)

enumerated six trends of Canadian community colleges which are common to both Alberta and Canada:

The number of colleges will sharply increase until a college exists within commuting distance of almost every Canadian citizen.

A second trend is to the establishment of provincial systems of coordination and control . . . Alberta affords the most recent example At the national level, a commendable effort is being made in the interests of country-side development by the Canadian Commission on Community Colleges (CCCC) to explore the possibility of establishing a national agency in cooperation with community colleges.. . . .

A third trend is a movement toward comprehensive institutions with generalized curricula and away from specialized colleges

A fourth trend is the increased effort to clarify the bases of articulation between community colleges, universities and high schools.

A fifth trend is the removal of colleges from the jurisdiction of school boards and direct government control

Finally, the value of community colleges as centres where students can reconcile aspirations with realistic educational goals will become increasingly appreciated.

Summary. Canadian provinces tend to view coordination of post-secondary education in terms of two systems: (1) universities and (2) institutes and/or colleges. Present trends indicate an increase in the number of comprehensive community colleges. The commission (intermediary coordinating body) type of agency is gaining in precedence throughout Canada as in the United States.

THE FUTURE

Introduction

Why should man speculate far ahead? The most important reason, write Kahn and Wiener (1967:1), " . . . is to try to predict conditions in reasonable detail and to evaluate how outcomes depend on current policy choices." Future outcomes, which are difficult if not impossible to predict, may have especially profound and varying consequences. These outcomes, according to Michael (1963:xxii), may be attractive or unattractive, probable or improbable, simple or complex. Although no one can predict "single" events (for example, "turning points"), it is nevertheless possible to sketch the constraints of social choice. Bell (Kahn and Wiener, 1967:28) writes that

. . . all [such] events are constrained by various contexts: of resources, of customs, of will. And they are shaped, as well, by basic trends in human society: the growth of science, literacy, economic interdependence, and the like.

Future events, said Helmer (1966:46) can be roughly categorized as being either expected or unexpected. Studies of the future (such as the one at hand) attempt to chart "alternative futures" as the condition for policy choices, thus one might speak of forecasting futures, since there is an infinite number of possible futures. In fact, of course, only one future will become the present.

The further in the future that projections are made, the more

uncertain they become and the more one must rely on judgment as to which of the possible futures is most likely. "For the more distant future, as the uncertainties grow, increased reliance on intuitive (as opposed to theory-supported) contingency forecasts become inevitable." Helmer (1966:47).

Emery (1967:200) believes that there are two ways to think about the future: one can adapt to what happens (passive approach) or one can influence the future (active approach). If one chooses the former, no planning is required; it is a case of disturbed-reactive strategy. If, on the other hand, one chooses the latter (imperative in education because of high cost), then ends and means must be defined, feedback must be provided and the prediction of consequences must be considered.

Planning

Karl Mannheim (1951:193) pointed out that there is no longer a choice to be made between planning and not planning; planning is absolutely essential. The choice element enters only when one asks "Who will plan?" and "What will be planned?" Both the right and the duty to plan belong to those who have laboured to acquire the knowledge and courage to look ahead and examine the trends of the times. It is up to educators as professionals to exercise this right and to fulfil this duty.

At this point, a more specific sense of what is meant by planning is needed. Michael (1968:68) wrote that planning never stops; it is responsive to the ongoing evaluation of the degree of mesh between (a) how things are going according to plan, and (b) how things are going outside of the plan. Planning includes the conventional diagrams and recommendations but, in addition to this,

. . . it also involves planning and vigorous participation in the development and use of the means for attaining the recommended ends Since the ends will inevitably be modified by the means and by circumstances not anticipated by or beyond the control of planners, the ends cannot be too rigid or singular in their specification. Michael (1968:68).

Planning, by its very nature, is not a mechanical process. Bell (Kahn and Wiener, 1967:xxvi). Choice is central to it, both for the ends desired and for the allocation of resources. Hence, planning and rationality are one and the same. Emery (1967:217) feels that planning should result in the extension of choices available,

. . . the future will be largely shaped by the choices men make, or fail to make, and it will not be molded simply by technical forces . . . processes existing in the present can reveal some of the basic choices that will confront men over the next thirty years. . . . social science should consider . . . the more active role of helping men to extend their visions.

This study attempts to identify problems of coordination in Alberta post-secondary education which probably have roots in the past and present but which have not yet totally manifested themselves. According to Machiavelli (Bull, 1961:40-41) writing in the sixteenth century,

. . . when the evils that arise . . . are seen far ahead . . . then they are easily remedied; but when, in consequence of not having been foreseen, these evils are allowed to grow and assume such proportions that they become manifest to everyone, then they can no longer be remedied.

It is thus of paramount importance to plan, on a long-range basis, for the accelerating needs in Alberta post-secondary education if irreversible errors are to be avoided.

Long-range planning. Machiavelli (Bull, 1961:130) argued that half of men's actions are ruled by chance and the other half by men themselves. Long-range planning is an effort to change that balance. The fact is that predictions involving periods even in the far-distant future do affect certain decisions or the lack of certain decisions now being made.

Michael (1968:67) feels that we can no longer afford to let things "work themselves out." He also stated that "while we must and

and want to do long-range planning, we won't be able to do it well." But it is a lesser of two evils approach, because we are almost certain to face disaster if we don't plan. Not planning offers no solutions. The other "evil" is to plan even though we choose among limited methods and knowledge, often unaware of our own limitations.

One possible solution, then, is to plan on a long-range basis. This requires knowledge about how to invent radical institutional forms and values which might, in turn, make possible both the establishment of the institutions and the assignment of appropriately prepared men to undertake the widespread application of long-range planning itself.

Michael (1968:67) hypothesized that there are three "preconditions" to good planning: " . . . sophisticated theory and data (about society), and appropriate means for applying both." Our theory and data about the behavior of men and institutions are limited. However, they are great enough to be useful when correctly applied. Furthermore, our techniques are limited and untried, since, in Michael's (1968:89) words,

. . . we have no proven methods or experts when it comes to long-range predictions. If we do have methods and experts, we won't know until we are well along into the time period that we want to be able to plan for now.

Decision-makers and policy-makers of the future will succeed only insofar as they plan in a way that accomodates a large range of events; in other words, flexibility is essential. Kahn and Wiener (1967:3) express the idea in these terms:

Thus in policy research we are not only concerned with anticipating future events and attempting to make the desirable more likely and undesirable less likely. We are also trying to put policy-makers in a position to deal with whatever future actually arises, to be able to alleviate the bad and exploit the good. In doing this, one clearly cannot be satisfied with linear or simple projections: a range of futures must be considered. One may try to affect the likelihood of various futures by decisions made today, but in addition one attempts to design programs able to cope more or less well with

possibilities that are less likely but that would present important problems, dangers, or opportunities if they materialized.

Prediction plays an important role in decision-making.

The decisions which professional decision-makers--governmental administrators, company presidents, military commanders, etc.--are called upon to make inevitably turn on the question of future developments, since their directives as to present actions are invariably conceived with a view to future results. Helmer and Rescher (1959:41).

We use forecasts, then, as a means of engineering changes intended to increase the likelihood of attaining a desired future from among the possible futures.

Methods of Forecasting Futures

Helmer (1966:6-13) called for a reorientation of some of the effort in the social-science area toward social technology. He feels that social scientists would do well to employ operations-research techniques.

The operations-research approach, instead of providing well-established theory for the phenomena to be dealt with, makes use of the best ad hoc inputs and models available. Such a pragmatic approach was born out of necessity--we can no longer afford to wait until satisfactory, well-tested theories of human relations are available. The two general types of methods required for the reorientation are operational model-building and systematic use of expertise.

Operational model-building. A scientist may construct a model of a given situation in order to better understand it. The features of a model include abstraction (omitting "irrelevant" elements), and conceptual transference (simulation). Models, said Helmer (1966:7) are " . . . apt to be ad hoc, tentative, future-directed and policy-oriented."

One type of model, the simulation model, is especially important in social technology. It is really pseudo-experimentation, that is, a

substitute model of reality. Simulation models include pencil-and-paper models (for example, mathematical equations) and physical simulation models (for example, astronaut trainers). An interesting type of physical simulation is operational gaming in which participants simulate real-world decision-makers in a conflict of interest context.

Scenario-writing is another interesting technique. It is closely related to model-building because it sets out to demonstrate the possibility of a certain state of affairs by exhibiting a reasonable chain of events that might lead to it. Hence, it provides a sample of future contingencies. "The scenario," said Kahn and Wiener (1967:262), "is particularly suited to dealing with events taken together--integrating several aspects of a situation more or less simultaneously."

The systematic use of expertise. Whereas model-building can be termed expedient, reliance on the use of expert judgment is more than that: it is an absolute necessity.

Expert opinion must be called on whenever it becomes necessary to choose among several alternative courses of action in the absence of an accepted body of theoretical knowledge that would clearly single out one course as the preferred alternative. Helmer (1966:11).

Two general categories of experts are specialists and generalists. Whereas specialists usually contribute substantive information and predictions, generalists function in the areas of problem-formulation, model-structuring, or preference-evaluation among predicted alternatives.

Expertise is especially useful in the area of public policy planning which depends heavily on the use of personal intuitive judgment. The most effective way of using such judgment, according to Helmer (1967:75), is to rely on expert rather than lay opinion, and to create conditions conducive to optimum performance by the experts. These

"conditions" would include formulation of an appropriate model, whenever possible, and a structure or facilities for communication with other experts in the field. If more than one expert is available on an issue, it is advantageous to systematically make use of the combined expertise; one method for doing so is the Delphi technique.

The name "Delphi" originated from the Delphic Oracle in Greece which, " . . . answered queries of humble seekers for help." Hoyle (1967:10).

Stated very simply, the Delphi technique

. . . eliminates committee activity among the experts altogether and replaces it with a carefully designed program of sequential individual interrogations (usually best conducted by questionnaire) interspersed with information input and opinion feedback. Helmer (Hirsch, 1967:76).

Dalkey (1969:408) says that "the rationale for the procedures is primarily the age-old adage "Two heads are better than one," when the issue is one where exact knowledge is not available." The procedures used in the Delphi method have three features: anonymous response (questionnaire), iteration and controlled feedback (interaction), and statistical group response (the group opinion is defined as an appropriate aggregate of individual opinions on "the final round.") These features deliberately avoid the biasing effects of dominant individuals, of irrelevant communications and of group pressure towards conformity.

The sequence of activities in conducting a Delphi study, using Helmer's (Hirsch, 1967:76-77) description as a guide, are as follows:

1. Each member of a panel of experts is asked the "primary question."

2. A summary of the responses from (1) is fed back to the respondents by stating the median and interquartile range. The panelist is asked to reconsider his answer from (1), possibly revise it and, if his

answer is outside the interquartile range, briefly state why it so deviates.

3. Again, the responses from the previous round are summarized. In addition to this, the respondents are presented with "deviationist" reasons. With this information, the experts restate their opinions. If they still remain outside the interquartile range, they must state why they are unconvinced by the opposing argument.

4. The fourth and final round involved the submission of counter-arguments to respondents. The results of this last estimate are taken to represent the nearest thing to a group consensus. It is noteworthy to point out that the interquartile range is usually smaller (convergence occurs) and the median is often moved to an earlier position than was the case in previous rounds.

Dalkey (1969:547-549) found that self-evaluation by the respondents appeared to be measuring something about the statements fairly well. These self-competence ratings did not help to identify more knowledgeable individuals; in fact, initial efforts to utilize the self-ratings for this purpose yielded negative results. However, group reliability for average self-competence on individual questions was quite high. This feature, called "degree of competence" in this study, was incorporated in the thesis.

Some examples of previously conducted Delphi studies might help to clarify areas appropriate for using this method. Dalkey and Helmer (1963:458) first conducted a Delphi study in 1953.

The experiment was designed to apply expert opinion to the selection, from the viewpoint of a Soviet strategic planner, of an optimal U.S. industrial target system and to the estimation of the number of A-bombs required to reduce the munitions output by a prescribed amount.

Another study conducted by Helmer (Hirsch, 1967:74-96) dealt with the future of automation:

. . . one of the questions addressed to each member of a panel of experts was to estimate the year when a machine would become available which could comprehend standard IQ tests and score above 150.

The RAND Corporation sponsored Gordon and Helmer (Helmer, 1966:44-5) to ". . . elicit predictions from individual experts in six areas: scientific breakthroughs, population growth, automation, space progress, probability and prevention of war, and future weapon systems." That study was compared by Ament (1970:35-44) to a 1969 Delphi study conducted by Gordon and Ament under the auspices of the Institute for the Future. It considered prospective developments in physical and biological technologies. Ament (1970:44) summarized the comparison of similar items in the two forecasts, made five years apart, using different panels of respondents, as follows:

Relative consistency of the forecasts; a shift to earlier median dates of many biological forecasts and to later dates of several space forecasts; similar forecasting behaviour, at least in terms of the spread of opinion, as a function of median time in the future.

The Delphi technique of forecasting was used in 1969 to probe future developments in the field of medicine. Bender et al (1969:289) researched the future of five areas: biomedical research, diagnosis, medical therapy, health care, and medical education. They constructed a scenario for the years 1978-93 with the results of their survey.

In the field of education, Helmer (Hirsch, 1967:74-96) reported that a number of Delphi pilot experiments were carried out at the 1965 Educational Innovations Seminar held at the Institute of Government and Public Affairs, UCLA (University of California at Los Angeles). The participants found the Delphi method very promising. They felt encouraged to apply the technique to similar problems in the field of educational planning.

The Delphi approach could be valuable, for example, to a superintendent intending to institute curriculum reform by taking opinion soundings among selected administrators and teachers within his jurisdiction. Another useful application of the Delphi method could be in establishing educational goals, since this is largely a matter of preferential judgments. The experts could include educators, psychologists, sociologists, and community leaders. Other examples could easily be found where the Delphi technique is useful.

Summary

The literature on the future reveals that there are a number of alternative futures (plural) open to man. However, the more distant the future, the more uncertain it becomes. Michael advocates long-range planning to anticipate possible uncertainties; these plans can be used as the basis for far-reaching contemporary policy decisions.

The two general methods of forecasting futures are operational model-building (simulation, scenarios, etc.) and the systematic use of expertise (Delphi technique). Following a description of the Delphi method, some examples of previously conducted studies are examined. An examination of the related literature would seem to suggest that the Delphi process might be a valuable technique for research in education in the sense that it seems to be a necessary and desirable preliminary step to making further decisions.

Chapter 3

THE RESEARCH DESIGN

SELECTION OF THE POPULATION

The process of selecting experts for consultation is usually made " . . . on the basis of what may vaguely be called their reputations," writes Helmer (1966:13). While acknowledging that selecting experts in itself requires expertise, the process can be thought of as consisting of two parts: the determination of which categories of expertise are needed, and the determination of who among the available persons is most expert in each such category.

For this study, fifteen people were initially selected to obtain a population knowledgeable in the area of coordinating post-secondary education. These fifteen people (see Table 1), who essentially comprised a panel of judges, were chosen by virtue of their past or present position in one or more of three categories of expertise: government, education or news media. Seven judges were chosen, on the basis of their reputations as perceived by the panel of judges, from the government of Alberta; seven others occupied posts in connection with an educational subsystem; the fifteenth judge was a newspaper reporter who often covered news stories in the field of education. Table 1 also shows that the representation on the panel of judges ("Total number of judges") was roughly proportional to the respective subsystems' full-time post-secondary student enrolment. The horizontal dimension of Table 1 shows the subsystem affiliation of the experts.

Table 1
Cross-Sectional Rationale for Panel of Judges
Used in Selecting Population

Subsystem affiliation	Approximate post-secondary enrolment (to the nearest thousand)	Category			Total number of judges
		Governmental	Educational	News media	
Universities	27,000		XXXXX		5
Public colleges	4,000	X	X		2
Institutes of technology	5,000 ¹	XX			2
Agricultural and vocational colleges	1,000 ²	X			1
Other		XXX	X	X	5
Total number of judges		7	7	1	15

¹Full-time day students; excludes apprenticeship.

²Actual count close to 700; excludes up-grading.

An effort was made to obtain a panel of judges which was representative of the power structure in coordinating Alberta post-secondary education. It was taken as axiomatic that post-secondary education is organized, and that, in Hunter's (1953:263) words, " . . . persons occupying 'offices' and public positions of trust would be involved in some manner in the power relations of the [educational] community."

The reputational technique, similar to that used by Hunter (1953:263-268), was then used to determine the population. Each panelist was interviewed to discuss the study and to obtain a list of names (averaging out to twenty-two per judge) from which to select the population. Those people (fifty-seven in all) who were nominated more than once, by the panel of judges, were selected to make up the population. Of the fifteen judges, nine became respondents themselves because of frequent nominations by fellow-judges.

Fifteen nominees were eliminated from the population because they were already involved in another study using the Delphi technique. Ten of these fifteen were replaced by other people from the same institution. The ten people were nominated, on the basis of their positions, by administrators from appropriate head offices. The other five people were eliminated; in each of these five cases, the person involved was represented by someone from the same immediate field.

The number of respondents contacted was fifty-two. In order to obtain a firm commitment from nominees, that they would participate in the study, certain steps were followed.

OBTAINING COMMITMENT

The prospective respondents were contacted by telephone and were asked to participate in the study. Following this, a confirming letter was forwarded to the potential respondent's office or home (see Appendix A). The letter contained (1) a copy of the telephone message, (2) a reply form indicating the respondent's agreement to participate, and (3) a self-addressed envelope. In this way both verbal and written commitments were obtained from each of the fifty-two respondents.

COLLECTION OF DATA

The collection of data began subsequent to obtaining commitment from the respondents. A four-part modified form of the Delphi technique, as employed by Helmer (Hirsch, 1967:76-77), Dalkey (1963:460-465) and others, was used for this study. As stated in Chapter 2 (page 26), the Delphi technique is a " . . . carefully designed program of sequential individual interrogations (usually best conducted by questionnaire) interspersed with information input and opinion feedback." Helmer (Hirsch, 1967:76).

The modification was that respondents were not fed back the "majority consensus to date" as was the case in the Helmer and Dalkey studies; that is, the respondents were not given a summary of the distribution of responses (predicted dates of occurrence) previously obtained. This modification was a deliberate attempt to avoid the kind of conforming convergence referred to by Asch (1952:465). It attempted to ensure that respondents were unaware of what predictions were being made by fellow-respondents; this was thought to be more conducive to independent thought on their part.

The feature of self-assessed degree of competence in making predictions, suggested by Helmer (1966:43), was included in this modified Delphi investigation. An explanation appears in Chapter 2, page 27.

The collection of data was done in four parts and was spread over a period of four months. Examples of the instruments for Parts 1, 2, 3, and 4 appear in Appendix B.

Part 1

This first mailing (see Appendix B) requested respondents to identify problems which they thought were likely to develop in the future and which they thought would affect the coordination of Alberta post-secondary education. The future problems and developments, as perceived by the respondents were made into statements. This was done by (1) eliminating repeated problems and developments, and (2) by combining similar problems and developments. The researcher sought to retain the original wording and intent (his perception of it) of the respondents' ideas. Following the formation of statements made from the perceived future problems and developments, related statements were grouped into categories called sets.

The total number of problems and developments perceived by respondents for Part 1 was 345, or an average of slightly more than seven problems per respondent. These 345 problems (or developments) were collapsed into 100 statements. The statements in turn were classified into 24 sets of approximately four statements each. The classification procedure was a necessary preliminary step for Part 2 of the study.

Part 2

The classified sets of statements from Part 1 were submitted to respondents, who were asked for (1) predicted dates of occurrence for the statements, along with (2) a self-appraisal by respondents of their degree of competence in making a prediction about each statement (see Appendix B).

Recording the data. When the Part 2 returns were received, the respondents were given identification numbers from one to fifty-two (in alphabetical order). The "probable date of occurrence" for each statement was then assigned a number, ranging from one through seven inclusive, depending on the category selected by the respondent. The degree of competence was given a weight from one through three, for low competence to high competence respectively (see Table 2).

The data were then recorded on a Data Punching Form provided by the Division of Educational Research Services and were punched on IBM cards (three cards per respondent) for analysis purposes.

Table 2

Number and Weight Assigned to Responses
for Recording Purposes

Probable date of occurrence							Degree of competence		
1970-71	1972-75	1976-80	1981-90	Later	Never	Perpetual problem	High	Medium	Low
1	2	3	4	5	6	7	3	2	1
Number							Weight		

Computer program. A specially-designed computer program, for the IBM 360/67 computer, was used to analyze the data. The program provided the following information:

1. a table showing personal data of respondents
2. a general table showing the distribution of the responses of the population treated as a whole
3. a table showing a comparison of the response behavior of respondents
4. a table showing the identification numbers of respondents who checked each category on the response sheet for each statement
5. a total degree of competence for each statement obtained by combining individual self-ratings of competence into a group rating.

Part 3

The purpose of this stage (see Appendix B) was to request, from respondents, reasons for their making particular predictions. The predictions which the respondents were asked to give reasons for were always either the earliest or latest for any particular statement. The "earliest prediction, for any statement, was the response(s) in or near the "1970-71" category; conversely, the "latest" response for "probable date of occurrence" was the one(s) in or near the "never" category. The "perpetual problem" category was not included for the purposes of the time continuum.

A maximum of six respondents were contacted for each statement: three "early" predictors (or fewer) and three "late/never" predictors (or fewer). The choice as to which respondents would be canvassed in this way was facilitated by the use of the table showing the identification numbers of the respondents who checked each category on the response

sheet, for each statement, from the computer printout of Part 2.¹ The "early" reason(s) for each statement were combined by eliminating repeated ideas, and by retaining as much as possible the respondents' original wording. The same practice was followed for the "late/never" reason(s).

Forty-two respondents were asked to submit 459 reasons; in other words, the researcher requested an average of nearly 11 reasons per respondent.

Part 4

The final stage of the study (see Appendix B) requested that each respondent (1) read the statement from Part 1, and (2) by referring to the reasons given in Part 3, reconsider and possibly revise his earlier prediction (made in Part 2). The Part 4 responses were then recorded in the same fashion as in Part 2 (for data-processing purposes).

A personal data sheet was also included with the Part 4 instrument; it requested that respondents check a category for their age, time in present position, and highest academic qualification.

Returns

The percentage returns for each part are based on the original population of fifty-two. Deadlines were established for each part and reminder letters (see Appendix C) were mailed on deadline dates to those who had not as yet returned their instruments.

¹Where more than three respondent identification numbers appeared in either the earliest or latest category, three numbers were randomly selected from the total. If three or fewer respondent identification numbers appeared in either the earliest or latest category, they (it) were all selected for the purpose of providing reasons.

Table 3 shows the actual number of instruments returned out of the total possible number, and the corresponding percentage returns for Parts 1-4. It can be seen that, as data collection progressed, the rate of return diminished. The final percentage return was 76.9.

Table 3

Rate of Return for a Four-Part
Modified Delphi Investigation

	Actual/Possible	Percentage
Part 1	47/52	90.4
Part 2	42/52	80.8
Part 3	41/52	78.8
Part 4	40/52	76.9

CHARACTERISTICS OF THE POPULATION

Three items of personal data (age, time in present position, and highest academic qualification) were requested with the final instrument (Part 4). Consequently, the characteristics of the population involve the forty respondents who returned that particular instrument and who, in fact, completed all four parts of the study. The other item of personal data, the respondents' positions, were obtained from the nominators or in some cases from the respondents themselves. The first characteristic of the population to be discussed is age.

Age

The 40 respondents were almost normally distributed over the five age categories (see Table 4). Approximately one-third (32.5 percent) of the participants ranged in age from 41 to 50 years; 30.0 percent were 40 years old or younger, while the rest of the respondents were more than 50 years old.

Table 4
Frequency Distribution of the Population
According to Age

Age category	Number of respondents	Percentage
20-30	1	2.5
31-40	11	27.5
41-50	13	32.5
51-60	11	27.5
61+	4	10.0
Total	40	100.0

Position and Time in Present Position

As shown in Table 5, the population was divided into 13 "position categories." Categories are also given for "complete years in present position." Almost half (47.5 percent) of the experts have been in their present position for three or fewer years. Ten of the respondents (25 percent) have held their present post for ten or more years.

Table 5

Frequency Distribution of the Population According to
Tenure in Present Position

Position category	Complete years in present position				Total percentage
	0-1	2-3	4-5	6-9	10+
<u>Government of Alberta</u> Department Director		1			2.5
Subsystem Director				1	5.0
Minister		1			5.0
Deputy Minister ¹			2		7.5
Commission Chairman	2				5.0
<u>University</u> Administrator	2	1	1		15.0
Professor					2.5
<u>College</u> Administrator	1	3	1		17.5
Teacher		1	1	1	7.5

Table 5 (continued)

Position category	Complete years in present position					Total percentage
	0-1	2-3	4-5	6-9	10+	
<u>School</u> Superintendent		1		2	1	10.0
Trustee					2	5.0
Executive Secretary		1				2.5
<u>Executive or</u> <u>Administrative</u> <u>Assistant</u>	1	4		1		15.0
Total (N: 40)	15%	32.5%	12.5%	15.0%	25.0%	100.0

¹Includes a former Deputy Minister.

Highest Academic Qualification

The third personal data variable is that of the education of respondents. As shown in Table 6, nearly half (47.5 percent) of the respondents hold Ph D degrees. There was considerable variation in the population with respect to the characteristic of highest academic qualification.

Table 6

Frequency Distribution of the Population According to
Highest Academic Qualification

Education	Number of respondents	Percentage
Secondary	1	2.5
Some post-secondary	1	2.5
Bachelor's degree	7	17.5
Graduate degree (Other than Ph D)	12	30.0
Ph D	19	47.5
Total	40	100.0

The population characteristics of age and highest academic qualification are examined in relation to prediction patterns of respondents in Chapter 4.

Chapter 4

FINDINGS

The major findings of the study are reported in this chapter. The chapter is divided into two sections: the predictions and the patterns of prediction.

The section on predictions involves 19 out of 24 sets. (A set consists of a number of statements relating to a common subject.) The other five sets (see Appendix D) contain findings which are being treated as background data for the study. The decision to put five sets of statements into an appendix was based on comments from respondents as well as the researcher's judgment.

The other section of Chapter 4, the patterns of prediction of the population, deals with all 24 sets of statements.

THE PREDICTIONS

Introduction

The 19 sets of statements for this section of Chapter 4 are each discussed separately and appear in 19 tables (Tables 7-25). The footnotes shown on the first table apply to all of the tables in this section.

Accreditation

The statements in the first set, accreditation, refer to problems in connection with the granting of credit from one educational institution for work done at another educational institution (see Table 7).

Table 7

Total Percentage Competence, Percentage Frequencies for Probable Date of Occurrence, and Reasons for Statements Concerned with Accreditation

Statement	Reason for prediction ^a		Prediction no.	Probable date of occurrence (%)						Total ^b competence (%)	
	Early	Late/Never		1970-71	1972-75	1976-80	1981-90	Later	Never		Perpetual problem
General recognition of all credits of 2 years' transfer program in community colleges by Alberta universities.	Already recognized. "Transfer program" implies acceptability. Increase in maturity and self-direction of student enrolment.	Will never be a problem. "All" bad word here: cannot see that all courses would be acceptable on <u>all</u> programs by <u>all</u> faculties.	1 (N: 40)	12.5	27.5	* ^c 35.0	7.5	10.0	5.0	2.5	74.2
			2 (N: 40)	22.5	* 40.0	17.5	2.5	0.0	12.5	5.0	80.0
Request for resolution of conflict of standards within the colleges system (3 colleges have transfer arrangements with the United States).	Lack of uniform policy. Meeting already held. U.S. quotas being established. Universities more liberal re articulation and accreditation. Colleges Commission now negotiates this.	Colleges are slow to act. Program standards are not now a major conflict but will be when accreditation comes.	1 (N: 41)	7.3	* 46.3	26.8	4.9	0.0	0.0	14.6	69.1
			2 (N: 40)	15.0	* 55.0	27.5	0.0	0.0	0.0	2.5	72.5

^aThe reasons, for "Early" predictions and for "Late/Never" predictions, were submitted to respondents after the first prediction but before the second prediction.

^bRespondents' total actual degree of competence/respondents' total possible degree of competence x 100.

^cIndicates time period by which 50 percent of the respondents ("perpetual problem" responses excluded) had made their prediction.

In the first round of predictions, only 40 percent of the population perceived that "general recognition of all credits of 2 years transfer program in community colleges by Alberta universities" would occur by 1975; however, in the second round, the proportion increased to 62.5 percent. Hence, according to the majority opinion of the respondents making the final prediction, this aspect of accreditation will become a reality within five years.

The second statement "request for resolution of conflict of program standards within the colleges system (3 colleges have transfer arrangements with the United States)" was perceived as a "perpetual problem" by 14.6 percent of the population in the first round of predictions. The respondents' final predictions, however, showed a shift out of the "perpetual problem" category (from 14.6 percent to 2.5 percent). The majority opinion, in both rounds of predictions, points to a "request for resolution" (of the above problem) within five years.

In general, most of the respondents saw 1975 as the date when the two developments in the set on accreditation "will either happen or reach such proportions that [they] will be clearly recognized by a majority of people affected by [them]."

Autonomy

The set of two statements shown in Table 8 is concerned with autonomy, or self-government.

The first statement, "increasing desire for autonomy by public colleges in fulfilling their objectives," was perceived by a sizeable majority of respondents (on both rounds of prediction) as becoming significant within five years. Nearly two-thirds (64.3 percent) of the

Table 8
Total Percentage Competence, Percentage Frequencies for Probable Date of Occurrence,
and Reasons for Statements Concerned with Autonomy

Statement	Reason for prediction		Prediction no.	Probable date of occurrence (%)					Total compe- tence (%)
	Early	Late/Never		1970- 71	1972- 75	1976- 80	1981- 90	Later	
Increasing desire for autonomy by public colleges in fulfilling their objectives.	Current issue. Delay in obtaining approval for programs. Need freedom to develop own purposes related to non-university students.	Autonomy will come when public colleges have their own boards.	1 (N: 42)	16.7	* 47.6	23.8	0.0	2.4	79.4
			2 (N: 40)	22.5	* 50.0	12.5	5.0	2.5	79.2
Unwillingness by univer- sities, with their long tradition of autonomy and educational seniority to become involved in a single system for Alberta post-secondary education.	Current problem however flexibility among the univer- sities is forthcoming. Universities resist centrali- zation and coordination.	Awareness by public of cost of poor planning. Built-in inequity in the prestige of universities.	1 (N: 42)	16.7	* 33.3	21.4	4.8	9.5	79.4
			2 (N: 40)	17.5	* 35.0	22.5	7.5	5.0	75.5

respondents in the first round predicted that the desire for autonomy by colleges would become crucial by 1975 while the percentage of the population increased to 72.5 percent for the same statement in the second round of predictions.

The second statement in the set on autonomy, "unwillingness by universities, with their long tradition of autonomy and educational seniority, to become involved in a single system for Alberta post-secondary education," showed that a majority of respondents, in both rounds, made their prediction in either the "1970-71" or the "1972-75" categories (50 percent in the first round and 52.5 percent in the second round). Hence the majority view of the respondents is that the problem of autonomy as related to universities will become readily apparent by 1975.

The respondents' self-assessed total percentage competence for the statements in the set on autonomy ranged from 75.8 percent to 79.4 percent--these percentages are considerably above the overall average total percentage competence of 66.8 percent for the first round of predictions and 69.9 percent for the second round.

Commission Government

The three statements contained in Table 9 are concerned with issues related to the commission form of coordinating post-secondary education.

The first statement, "dissatisfaction with commission form of central coordination and control," was seen as a "perpetual problem" by a relatively large percentage of the respondents (24.4 percent and 15.4 percent for the first and second rounds of predictions, respectively). The majority view for the same statement was that the dissatisfaction

Table 9

Total Percentage Competence, Percentage Frequencies for Probable Date of Occurrence, and Reasons for Statements Concerned with Commission Government

Statement	Reason for prediction		Prediction no.	Probable date of occurrence (%)						Total competence (%)	
	Early	Late/Never		1970-71	1972-75	1976-80	1981-90	Later	Never		Perpetual problem
Dissatisfaction with commission form of central coordination and control.	Unfair competition, that is, Alberta Colleges Commission controls public colleges but not institutes or agricultural colleges. Susceptible as a combination "super board" and arm of government.	Will prove more and more beneficial. Dissatisfaction (by whom?) not intense and general enough for threat. Gaining momentum in so many places.	1 (N: 41)	12.2	19.5	* 22.0	7.3	4.9	9.8	24.4	78.0
			2 (N: 39)	10.3	17.9	* 15.4	10.3	15.4	15.4	15.4	72.6
Emergence of an Alberta Commission for Higher Education to coordinate all Alberta post-secondary education.	Coordination essential especially since introduction of the community colleges and a future university.	Universities will succeed in retaining Universities Commission. This event is more improbable than probable.	1 (N: 41)	2.4	46.3	* 24.4	22.0	2.4	2.4	0.0	71.5
			2 (N: 40)	2.5	* 47.5	27.5	10.0	7.5	2.5	2.5	76.7
Sufficient statutory authority provided to the intermediary bodies (Alberta Universities Commission, Alberta Colleges Commission) to enable them to remain viable under entrenched local interest pressures.	Commission can now control the individual colleges. Local boards to become advisory bodies only. Critical decisions subject to approval of Colleges Commission or Department of Education.	Politics will stop this. Educational institutions have duty to serve local district-intermediary bodies can remain viable as long as they recognize this.	1 (N: 41)	17.1	* 53.7	9.8	4.9	4.9	4.9	4.9	71.5
			2 (N: 39)	20.5	* 35.9	17.9	7.7	5.1	10.3	2.6	68.4

would become significant by 1980.

The second statement, "emergence of an Alberta Commission for Higher Education to coordinate all Alberta post-secondary education," was predicted, by a majority of respondents, to happen by 1980 (in the first round). In the second round, a slight shift to earlier prediction categories brought the majority opinion into the "1972-75" category. The shift in the majority opinion (from round one to round two predictions), was accompanied by a higher total percentage competence; that is, respondents felt more competent for their second prediction than for their first, in making a judgment about the "probable date of occurrence" for the formation of an Alberta Commission for Higher Education.

As for the third statement in the set in commission government, "sufficient statutory authority provided to the intermediary bodies to enable them to remain viable under entrenched local interest pressures," the second round of predictions showed a shift of responses (from the first round) out of the "1972-75" category (53.7 percent to 35.9 percent) into both the "1976-80" category (9.8 percent to 17.9 percent) and the category (4.9 percent to 10.3 percent). Hence it appears that, in general, respondents tended to predict a later "probable date of occurrence" in the second round of predictions than in the first round with respect to providing sufficient statutory authority to commissions.

In general, the majority-opinions, for each of the three statements in the set on commission government, were contained in time periods preceding 1981. Total percentage competence associated with the predictions ranged from a low of 68.4 percent to a high of 78.0 percent.

Coordination

The set on coordination consists of five statements (see Table 10). Coordination refers to the harmonious functioning of, in this case, Alberta post-secondary education.

According to the majority view, the first statement, "formal coordination of demands on the community as a laboratory (research) for post-secondary institutions," was expected to become a significant matter by the end of this decade.

As for the second statement, "formal cooperation and articulation among and within institutions for dissemination and economy of specialized research and development activities," a large proportion of the respondents moved to earlier predictions (26.2 percent for 1970-75 in the first round as opposed to 47.5 percent in the second round). As a result the category with the majority opinion became "1972-75" instead of "1976-80."

The third statement, dealing with massive duplication of educational facilities revealed an unusually high proportion of respondents responding "never." In the first round of predictions, about one-fifth (21.4 percent) of the population could not foresee educational duplication as being massive; however, the second round showed an increase in proportion to almost one-third of the respondents (32.5 percent). The word massive was repeated by respondents in the "late/never" reasons--the investigator infers that this word contributed to the shift of responses (into the "never" category) from the first prediction to the second prediction.

A salient finding in connection with the fourth statement in the set on coordination, "post-secondary education, adult education, continuing education, further education, etc. fused into a pattern of lifelong

Table 10

Total Percentage Competence, Percentage Frequencies for Probable Date of Occurrence, and Reasons for Statements Concerned with Coordination

Statement	Reason for prediction		Prediction no.	Probable date of occurrence (%)					Total competence (%)
	Early	Late/Never		1970-71	1972-75	1976-80	1981-90	Later	
Formal coordination of demands on the community as a laboratory (research) for post-secondary institutions.	Advisory committees being set up in all colleges. Work-experience program now planned for Secretarial students of a college in Alberta.	What community where? Perhaps informal coordination but not formal coordination. Demands shift erratically and continually.	1 (N: 40)	2.5	27.5	*	7.5	12.5	61.7
			2 (N: 39)	2.6	33.3	*	2.6	10.3	62.4
Formal cooperation and articulation among and within institutions for dissemination and economy of specialized research and development activities.	Process well underway, for example, no community college allowed to establish computer centre, this a function of the total system. Research information already formally directed through Commission.	Theoretical reality only, never accomplished. Autonomy is necessary. If it lasts, each institution will function quite unto itself.	1 (N: 42)	2.4	23.8	*	19.0	4.8	65.9
			2 (N: 40)	15.0	32.5	30.0	5.0	7.5	72.5
Proliferation of post-secondary, adult and continuing education facilities (libraries, television, computer facilities) to the extent that massive, costly duplication will occur.	Alberta examples exist. Problem will diminish with more coordination by the Colleges Commission. Institutions now cover many of the same areas.	System never be perfect; always some duplication but never massive duplication. Always be a shortage of varied educational facilities.	1 (N: 42)	11.9	40.5	11.9	7.1	21.4	72.2
			2 (N: 40)	15.0	20.0	*	0.0	32.5	75.0

Table 10 (continued)

Statement	Reason for prediction		Prediction no.	Probable date of occurrence (%)						Total competence (%)		
	Early	Late/Never		1970-71	1972-75	1976-80	1981-90	Later	Never		Perpetual problem	
Post-secondary education, adult education, continuing education, further education, etc. fused into a pattern of lifelong education.	In business area, people feel need to keep up to date. Routine-type jobs disappearing.	"Pattern" indicates orderliness, organization, continuity, and universality; this is unlikely to emerge in the foreseeable future. Vested interests.	1 (N: 42)	2.4	7.1	33.3	*	35.7	16.7	0.0	4.8	68.3
			2 (N: 40)	2.5	17.5	*	45.0	22.5	10.0	0.0	2.5	75.0
General expansion of non-credit, short-term university Adult Education through seminars, conferences and short courses.	Trend well established. Universities will continue to expand these programs unless legislation gives responsibility and funds to Colleges Commission.	Other agencies will be doing this kind of work more effectively.	1 (N: 42)	9.5	*	57.1	23.8	7.1	0.0	2.4	0.0	70.6
			2 (N: 40)	22.5	*	50.0	20.0	2.5	2.5	2.5	0.0	75.4

education," is that all the respondents involved in both rounds of predictions, predict that this will occur; no one selected "never" as a response. The majority view was that a pattern of lifelong education will emerge within the decade.

The final statement, "general expansion of non-credit, short-term university Adult Education through seminars, conferences and short courses," was seen by a majority of respondents (on both rounds of predictions) as being a development of significant proportions within five years.

An additional finding in the set on coordination is that, in two of the "early" reasons, respondents felt that the Alberta Colleges Commission should be given more power. The first "early" reason, referring to "massive, costly duplication," states that the "problem will diminish with more coordination by the Colleges Commission." In the second case, the statement deals with the expansion of university short courses for adults; the respondents giving reasons for their "early" prediction felt that "universities will continue to expand these programs unless legislation gives responsibility and funds to Colleges Commission." Hence, this finding suggests that the Alberta Colleges Commission should be given wider responsibility for coordinating Alberta post-secondary education.

Enrolments

In Table 11, the statements deal with enrolments of students in educational institutions.

For the first statement, "students told which university, college or institute to attend," approximately one-third (32.5 percent) of the respondents, in their second round of predictions, felt that this

Table 11

Total Percentage Competence, Percentage Frequencies for Probable Date of Occurrence, and Reasons for Statements Concerned with Enrolments

Statement	Reason for prediction		Prediction no.	Probable date of occurrence (%)						Total competence (%)		
	Early	Late/Never		1970-71	1972-75	1976-80	1981-90	Later	Never		Perpetual problem	
Students told which university, college or institute to attend (for example, because of enrolment ceilings).	Students forced to consider alternatives because of peak post-secondary population projection (1972-77) and diminishing capital resources. Central office will issue referral.	Unacceptable in democratic system where taxpayers finance education. Admission may be refused instead.	1 (N: 42)	0.0	31.0	*	21.4	23.8	11.9	9.5	2.4	68.3
			2 (N: 40)	0.0	32.5	12.5	*	12.5	10.0	32.5	0.0	72.5
50% of university freshmen enrolled in community colleges.	Limited space, facilities, and funds in universities. Two-year programs at colleges, attractive campuses and accessibility of several junior colleges.	Freshmen at university because community colleges serve as bridge between high school and university. Sufficient space available for foreseeable future.	1 (N: 42)	0.0	7.1	40.5	*	28.6	11.9	9.5	2.4	70.6
			2 (N: 40)	0.0	7.5	*	45.0	22.5	12.5	12.5	0.0	69.7
50% of labor force involved in education or training (including specialized technical training for rural Albertans).	Retraining concept rapidly being considered.	Difficult to foresee 50% of the labor force either inclined or intellectually equipped to pursue continued education or training. More automation in education.	1 (N: 41)	0.0	2.4	29.3	*	34.1	22.0	12.2	0.0	61.8
			2 (N: 40)	2.5	5.0	27.5	*	27.5	22.5	15.0	0.0	65.8

Table 11 (continued)

Statement	Reason for prediction		Prediction no.	Probable date of occurrence (%)					Total competence (%)
	Early	Late/Never		1970-71	1972-75	1976-80	1981-90	Later	
90% of those who start grade 1 complete high school.	45% in 1957-58 (Alberta); 82% in 1967-68 (Alberta). Grade 12 enrolment may now exceed 90% of the age cohort.	Decline in academic opportunities with resulting shift to vocational education, hence percentage will never be reached. Attrition and diversification of post-elementary opportunities.	1 (N: 41)	4.9	26.8	* 19.5	26.8	14.6	69.1
			2 (N: 40)	17.5	* 45.0	17.5	7.5	7.5	75.8
70% of high school graduates continuing education for at least one more year.	Rapidly approaching 100%. Students cannot be accommodated in present institutions and return to high schools. Must be some provision immediately.	Assuming number under 50% now, have allowed over 20 years to reach more than 70%. In these figures, continuation means immediately upon completion of high school.	1 (N: 42)	2.4	16.7	* 45.2	33.3	2.4	75.4
			2 (N: 40)	7.5	22.5	* 50.0	12.5	7.5	73.3

would "never" happen; the other two-thirds of the population (67.5 percent), however, anticipated that students would be told at some time in the future which post-secondary educational institution to attend.

The majority opinion in the second round of predictions was that, by 1980, the second statement, "50% of university freshmen enrolled in community colleges," would be a reality. At the extremely "late" end of the time continuum ("1970-71" to "never"), however, 12.5 percent said it would "never" occur.

The third statement, "50% of labor force involved in education or training," was seen by respondents on both rounds of predictions as becoming significant during the decade "1981-90." Very little variation was evident from the first round of predictions to the second round. Total percentage competence for the predictions in connection with this statement was relatively low at 61.8 percent for the first round of predictions (overall average 66.8 percent) and 65.8 percent for the second round (overall average for round two predictions was 69.9 percent).

The fourth statement in the set on enrolments, "90% of those who start grade 1 complete high school," was perceived as occurring sooner on the second round of predictions than on the first; that is, the majority opinion moved from the "1976-80" time period to the (earlier) "1972-75" category.

Within this decade the fifth and final statement, "70% of high school graduates continuing education for at least one more year," will be a reality; such was the majority opinion of respondents on both rounds of predictions.

The five statements in the set on enrolments were quite statistical in nature and as a result will occur, if at all, at some discreet

point in time. A noticeable finding in this regard is that no one (on the second of predictions) indicated these statements as being perpetual problems.

Entrance Requirements

As shown in Table 12, the set of statements dealing with entrance requirements is made up of four statements.

The first statement includes three conceptually different ideas: (1) "abandonment of High School Diploma," (2) (abandonment of) "grade 12 departmental examinations," and (3) "introduction of standardized entrance examinations for universities," hence some respondents found difficulty indicating a single prediction category. One person indicated three separate date categories and labelled each mark with one of the three predicted developments. In any case, respondents, in the second round of predictions, expect that a change is imminent since 63.2 percent checked "1972-75" as the "probable date of occurrence" for the first statement in this set.

Over one quarter of the respondents, for both rounds of predictions, saw the second statement, "equality of educational opportunity" as a "perpetual problem." The total percentage competence of the population, in making a prediction about "equality of educational opportunity," was 75.6 percent and 77.8 percent for predictions one and two respectively; this compares with the overall average total percentage competence of 66.8 percent for round one and 69.9 percent for the other round of predictions.

On both rounds of predictions, respondents perceived the third statement, "open-door policy for colleges," as happening within five years. The first round predictions combined for a frequency of 58.5

Table 12

Total Percentage Competence, Percentage Frequencies for Probable Date of Occurrence, and Reasons for Statements Concerned with Entrance Requirements

Statement	Reason for prediction		Prediction no.	Probable date of occurrence (%)						Total competence (%)		
	Early	Late/Never		1970-71	1972-75	1976-80	1981-90	Later	Never		Perpetual problem	
Abandonment of High School Diploma, grade 12 departmental examinations, and introduction of standardized entrance examinations for universities.	Good people being denied access to universities. Universities already provide CEEB examinations; SACU (Canadian alternative) being developed.	Unlikely. Diploma indicates attendance. Predict abandonment of grade 12 departmentals in 1972-75; replacement by entrance examinations neither inevitable nor desirable.	1 (N: 42)	0.0	47.6	*	28.6	19.0	2.4	2.4	0.0	73.0
			2 (N: 38)	0.0	*	63.2	26.3	5.3	0.0	5.3	0.0	70.2
Equality of educational opportunity.	Already exists. Pressure from student groups, some university departments and the university is building already.	Problem may be minimized but never solved. Impossible to achieve, unattainable ideal; has many aspects.	1 (N: 41)	4.9	4.9	17.1	*	14.6	9.8	19.5	29.3	75.6
			2 (N: 39)	5.1	7.7	15.4	*	10.3	15.4	17.9	28.2	77.8
Open-door policy for colleges.	Colleges now have this; programs exist for anyone to work toward his goal. Public pressure will bring this to head shortly.	No pressure for this. Numbers wishing to attend necessitate imposing comparatively high entrance standard.	1 (N: 41)	12.2	*	46.3	22.0	2.4	9.8	7.3	0.0	78.9
			2 (N: 39)	28.2	*	48.7	12.8	2.6	2.6	2.6	2.6	70.9
Multiple points of entry (for example, age, grade, time, etc.) from secondary education to post-secondary education.	A few colleges have this. Semester system, ungraded classes, team teaching, year round operation of schools, work-study models, individualized learning programs and "drop-ins" are current trends.	Will come with gradually increasing flexibility. Multiple points of entry now exist for different sorts of courses.	1 (N: 40)	12.5	*	45.0	27.5	7.5	5.0	0.0	2.5	72.5
			2 (N: 39)	17.9	*	43.6	33.3	2.6	2.6	0.0	0.0	78.6

percent in the first two time categories ("1970-71" and "1972-75"), while the same two categories in the second round included 76.9 percent of the population.

The last statement, "multiple points of entry from secondary education to post-secondary education," should be a reality within the present decade according to nearly 95 percent of the respondents making their second predictions. Such a development would provide the student with greater flexibility in planning his education.

The total percentage competence for the statements in the set on entrance requirements ranged from 70.2 percent to 78.6 percent. These percentages exceed the average by a considerable margin (68.8 percent and 69.9 percent for the first and second predictions, respectively).

Educational Finance

The set on educational finance, shown in Table 13, consists of five statements. The first two statements, "financial support of education viewed as a community concern," and "taxpayer revolt due to tax burden," are concerned with educational budgets in general. The other three statements, "cost-benefit studies to set priorities in post-secondary education," "50% public financial support for private colleges," and "appeals by public colleges for private funds," relate to the financing of post-secondary education in particular.

"Financial support of education viewed as a community concern," the first statement in the set, is somewhat controversial for the population taken as a whole. Although a majority (responses in "perpetual problem" excluded) of the respondents in both rounds of predictions had made their prediction by "1972-75," a relatively high proportion (15.8 percent), on the second round of predictions, said "never."

Table 13

Total Percentage Competence, Percentage Frequencies for Probable Date of Occurrence, and Reasons for Statements Concerned with Educational Finance

Statement	Reason for prediction		Prediction no.	Probable date of occurrence (%)						Total competence (%)		
	Early	Late/Never		1970-71	1972-75	1976-80	1981-90	Later	Never		Perpetual problem	
Financial support of education viewed as a community concern.	Been the case with four of the community colleges. New educational financing will involve community. Legally so now. 3AU (Three Alberta Universities) project now underway.	Community defined as local. Provincial and federal concern--resources cannot be met by individuals or local community.	1 (N: 42)	33.3	*	26.2	9.5	4.8	0.0	7.1	19.0	77.8
			2 (N: 38)	26.3	*	21.1	13.2	5.3	2.6	15.8	15.8	73.7
Taxpayer revolt due to tax burden (resulting in unpleasant priorities being set--for education).	Now a fact. Unpleasant priorities reflect taxpayer unrest. Presuming implementation by Department of Education of proposed regulations pertaining to supplementary requisitions and plebiscites.	Issue of "taxpayer revolt" is phony. Most taxpayers becoming increasingly aware of value of educational expenditures. Educators can and must justify their needs for support.	1 (N: 41)	12.2		31.7	9.8	4.9	2.4	26.8	12.2	69.9
			2 (N: 39)	15.4		28.2	10.3	2.6	5.1	28.2	10.3	77.8
Cost-benefit studies to set priorities in post-secondary education (for example, graduate versus undergraduate endeavors).	Economic trends dictate this. Cost-benefit analysis should be one of the instruments used to measure educational effectiveness.	Differing accounting procedures make comparisons difficult. Threat to autonomy. Priorities established politically. Public ignorant of economic theory.	1 (N: 41)	4.9	*	53.7	31.7	7.3	2.4	0.0	0.0	72.4
			2 (N: 39)	7.7	*	56.4	15.4	7.7	2.6	5.1	5.1	74.4

Table 13 (continued)

Statement	Reason for prediction		Predic- tion no.	Probable date of occurrence (%)						Total compe- tence (%)		
	Early	Late/Never		1970- 71	1972- 75	1976- 80	1981- 90	Later	Never		Perpetual problem	
50% public financial support for private colleges	More than this is provided now. Must get this type of support or cease operation.	Trend is other way; U.S. experience shows decreasing public funds for this. Provincial government already committed to 90%.	1 (N: 40)	5.0	20.0	*	22.5	12.5	7.5	27.5	5.0	62.5
			2 (N: 38)	34.2	*	15.8	10.5	5.3	7.9	21.1	5.3	69.3
Appeals by public colleges for private funds.	Presently happening. Interpreted "public colleges" too broadly (to include universities).	Appeals for private funds will disappear; society does not support appeals by public institutions. Irreversible trend toward socialism.	1 (N: 42)	9.5	*	54.8	16.7	4.8	2.4	7.1	4.8	73.0
			2 (N: 38)	28.9	*	39.5	5.3	5.3	0.0	13.2	7.9	71.9

For the second statement, "taxpayer revolt due to tax burden," 31.7 percent of the responses fell into the "1972-75" category for the first round of predictions and 28.2 percent for the same time period in the second round. At the other end (late) of the time continuum, however, over one quarter of the respondents voted "never" (26.8 percent in the first round of predictions and 28.2 percent in the second round). The tendency to concentrate responses in the "1972-75" and "never" categories represents a bi-modal type of response distribution. In other words, respondents tend to fall into two camps on the issue of taxpayer revolt; some say it's now, others say the issue "is phony" and will never occur.

There seems to be little doubt in the minds of respondents that the development in the next statement, "cost-benefit studies to set priorities in post-secondary education," will happen soon. For the first predictions, 90.3 percent of the respondents expected cost-benefit studies to prevail by 1980 while 79.5 percent were of this opinion in the second round of predictions.

The fourth statement, "50% public financial support for private colleges," was perceived by 34.2 percent of the respondents as being a reality now whereas 21.1 percent indicated "never" as their response.

Whereas the fourth statement is concerned with private colleges, the fifth statement relates to public colleges. Over two-thirds (68.4 percent) of the respondents, for their second prediction, forecasted 1975 as the latest date when the development of "appeals by public colleges for private funds" would reach significant proportions.

For the set on educational finance taken as a whole, total percentage competence for predictions ranged widely from 62.5 percent to 77.8 percent.

Federal Government

Table 14 presents five statements which relate to the federal government.

The idea of "overall coordination, by a strong central government, of a general education program at the post-secondary level to educate the public to combat social problems," was met with a comparatively large proportion (26.2 percent) of responses in the "never" category, for the first prediction. Although the percentage frequency answering for the second round of predictions fell to 20.5 percent, the majority opinion occurred in the "later" category.

For the second statement, "coordination within a cooperative framework of checks and balances involving federal, provincial and regional structures," one respondent was asked to give his reason for giving a "late/never" prediction. His answer, "past experience indicates coordination within a cooperative framework is virtually impossible," coincides with that found in the related literature on voluntary coordinating agencies (see Chapter 2).

A convincing percentage of respondents, 59.5 percent for the first prediction and 56.4 percent for the second, predicted "never" in connection with the introduction of a "uniform curriculum among universities and colleges across Canada."

Respondents tended to predict that the fourth statement, "education becoming a national responsibility as opposed to provincial responsibility," would "never" happen; 45.2 percent felt this way for the first round of predictions while for the second round, the percentage rose to 52.5.

The fifth and final statement in the set on federal government,

Table 14

Total Percentage Competence, Percentage Frequencies for Probable Date of Occurrence, and Reasons for Statements Concerned with the Federal Government

Statement	Reason for prediction		Prediction no.	Probable date of occurrence (%)						Total competence (%)	
	Early	Late/Never		1970-71	1972-75	1976-80	1981-90	Later	Never		Perpetual problem
Overall coordination, by a strong central government, of a general education program at the post-secondary level to educate the public to combat social problems (for example, pollution).	Need already exists. Unmistakable signs of government influence in the area of pollution, drug abuse, poverty, etc. Pollution problem urgent.	May be programs directed to specific problems (for example, pollution). Do not foresee that federal government will be involved in program of general education.	1 (N: 42)	0.0	14.3	16.7	* 14.3	11.9	26.2	16.7	61.9
Coordination within a cooperative framework of checks and balances (finance, program, etc.) involving federal, provincial and regional structures.	Trend toward greater centralization to control and coordinate educational costs and toward local autonomy; leading to development of complex systems of checks and balances. Less and less economic support for education.	Past experience indicates coordination within a cooperative framework is virtually impossible.	1 (N: 41)	7.3	19.5	* 39.0	22.0	4.9	2.4	4.9	64.2
"Uniform" curriculum (or at least course numbering) among universities and colleges across Canada.	Too many jurisdictions, local autonomy and academic freedom inhibit uniformity. Transferability will result from student and other public pressure in the next decade--implies some curriculum similarities.	Current trend diversity, not uniformity. Trend to local curriculum development to meet local conditions. Constitutionally almost impossible. Increased emphasis on accepting similar courses, not only same, for credit.	2 (N: 40)	2.5	30.0	* 25.0	15.0	17.5	7.5	2.5	65.0
			1 (N: 42)	0.0	0.0	11.9	11.9	7.1	* 59.5	9.5	69.8
			2 (N: 39)	0.0	0.0	7.7	7.7	15.4	* 56.4	12.8	65.0

Table 14 (continued)

Statement	Reason for prediction		Prediction no.	Probable date of occurrence (%)						Total competence (%)	
	Early	Late/Never		1970-71	1972-75	1976-80	1981-90	Later	Never		Perpetual problem
Education becoming a national responsibility (financing, coordinating, etc.) as opposed to provincial responsibility.	Education of great concern to federal government; for example, already involved in finance.	Both national and local authorities would resist this. Total system (with provincial differences) better.	1 (N: 42)	0.0	4.8	7.1	9.5	*	45.2	4.8	71.4
	Mobility of people, simple justice point to increased federal responsibility.	Change required in B.N.A. act. Federal can help in equalizing education by finances.	2 (N: 40)	0.0	5.0	15.0	5.0	20.0	*	52.5	74.2
Establishment of a national association of community-junior colleges.	Planning Committee hopes to do this in late 1970. Some national interchange now. Groundwork laid by CCCC; assume an organization will follow.	As the number of junior colleges increases across Canada, there seems to be a need for articulation, recognition of standards and transfer policies among them.	1 (N: 42)	11.9	*	59.5	16.7	9.5	2.4	0.0	70.6
			2 (N: 40)	30.0	*	52.5	10.0	2.5	2.5	0.0	76.7

"establishment of a national association of community-junior colleges," could occur this year according to a respondent giving his reason for making an "early" prediction. The respondent said that the "planning committee hopes to do this in late 1970." In any case, the majority opinion in both rounds of predictions viewed this event as happening before 1976 (61.4 percent in round one predictions and 82.5 percent for the second round).

With the exception of the final statement in the set, "establishment of a national association of community-junior colleges," respondents tended to avoid early predictions in favor of late predictions.

Freedom in Education

Statements concerned with freedom in education constitute the set shown in Table 15.

A proportion of 22.5 percent of the respondents, making their first prediction, did not think "formal articulation among 'free' institutions and other institutions," would ever occur. In the second round of prediction, the proportion of the participants saying "never" decreased slightly to 20.0 percent. At least one respondent, in giving his reason for a "late/never" prediction, felt that "articulation destroys the 'free ideas'."

The second statement, "serious 'backlash' effect, by the general public, resulting from 'academic freedom' of universities," tended to divide respondents into two extreme prediction positions. In the first round of predictions, 31.0 percent of the respondents perceived the backlash as reaching significant proportions during the time period "1976-80" while 23.8 percent said "never." In the second round of predictions, the concentration of early responses occurred in the "1972-75"

Table 15

Total Percentage Competence, Percentage Frequencies for Probable Date of Occurrence, and Reasons for Statements Concerned with Freedom in Education

Statement	Reason for prediction		Prediction no.	Probable date of occurrence (%)						Total competence (%)		
	Early	Late/Never		1970-71	1972-75	1976-80	1981-90	Later	Never		Perpetual problem	
Formal articulation among "free" institutions (students decide where, what, how, with whom, when to study) and other institutions.	UBC arts program and others now introducing these programs. Application to one central office, (for example, commission). Growth of Alberta institutions and student pressure will force issue.	Too many jurisdictions, local interests, academic freedom. Articulation destroys the "free idea." Not in nature of free institutions to formalize relationships. Bureaucracy.	1 (N: 40)	0.0	7.5	22.5	*	20.0	17.5	22.5	10.0	54.2
			2 (N: 40)	0.0	17.5	22.5	*	17.5	15.0	20.0	7.5	62.5
Serious "backlash" effect, by the general public, resulting from "academic freedom" of universities.	Some people are fed up with what's going on at the university; the exercise of freedom on campuses has already induced a backlash.	Worst is now. Raising educational level will result in approval, not backlash, of value of academic freedom. Involvement in and by universities will decrease gulf between "gown and town."	1 (N: 42)	7.1	23.8	*	31.0	2.4	4.8	23.8	7.1	61.1
			2 (N: 40)	15.0	47.5	*	15.0	0.0	5.0	12.5	5.0	70.0
General reduction in the number of required courses in particular programs.	Student demands and evaluation of results show worth of less formality, more freedom. Continuing process (for example, latest proposals for B. Ed. programs at U. of A.).	Specialization in the post-secondary level will require more specific courses; will increase in the future rather than decrease.	1 (N: 42)	14.3	50.0	*	16.7	4.8	4.8	2.4	7.1	71.4
			2 (N: 40)	25.0	47.5	*	12.5	0.0	5.0	2.5	7.5	73.3

Table 15 (continued)

Statement	Reason for prediction		Prediction no.	Probable date of occurrence (%)					Total competence (%)
	Early	Late/Never		1970-71	1972-75	1976-80	1981-90	Later	
Climate of cooperation, participation and inter-action in the internal government of individual institutions (that is, reciprocity of faculty, students and supporters).	New legislation permits and encourages participation of many groups in the governance of colleges; already emerging in certain faculties in universities.	Long time before students, staff and public communicate and trust one another. Historical evidence plus a continued difference in goals among board, faculty, and students.	1 (N: 42)	11.9	* 35.7	19.0	9.5	2.4	69.0
			2 (N: 38)	23.7	* 21.1	34.2	0.0	2.6	71.9

category (47.5 percent) and the late responses again tended to be in the "never" category (12.5 percent).

There was more agreement with respect to the third statement in the set on freedom in education: "general reduction in the number of required courses in particular programs." For this statement, a decisive 81.0 percent of the participants in the first round of predictions and 85.0 percent in the second round saw this development as becoming significant within ten years.

The fourth statement, "climate of cooperation, participation and interaction in the internal government of individual institutions," was considered to be a "perpetual problem" by 19.0 and 15.8 percent of the respondents making their first and second predictions, respectively. Those percentages are comparatively high for the "perpetual problem" cell.

Percentage competence for predictions in this set ranged widely from 54.2 to 73.3 percent. An unusually large increase in competence between predictions (54.2 to 62.5 percent) was recorded for the problem of "formal articulation among 'free' institutions and other institutions."

Philosophy

In the next set of statements, shown in Table 16, problems relating to philosophy are raised.

The "abandonment of the institutional concept by post-secondary education" was not anticipated, by a majority (51.2 percent) of respondents making their first prediction, to ever take place. However, for the second round of predictions a small reduction (3.7 percent) in the proportion of respondents saying "never" resulted in a shift of the majority view from "never" to "later."

Table 16

Total Percentage Competence, Percentage Frequencies for Probable Date of Occurrence, and Reasons for Statements Concerned with Philosophy

Statement	Reason for prediction		Prediction no.	Probable date of occurrence (%)						Total competence (%)	
	Early	Late/Never		1970-71	1972-75	1976-80	1981-90	Later	Never		Perpetual problem
Abandonment of the institutional concept (an organization having some social, educational, or religious purpose) by post-secondary education.	Students rejecting primary purpose (economic) of post-secondary education--will force abandonment of the present concept.	Possible with new technology. Social functions likely to persist. Strong self-preservation instinct of institutions well known. Greater institutionalization in future.	1 (N: 41)	0.0	2.4	9.8	14.6	19.5	* 51.2	2.4	60.2
			2 (N: 40)	0.0	2.5	12.5	15.0	* 20.0	47.5	2.5	67.5
Re-introduction of the institutional concept by post-secondary education.	Institutions have desire to retain identity, (for example, universities).	No abandonment hence no re-introduction. Post-secondary education largely pre-occupational in nature--society seems to demand this.	1 (N: 31)	6.5	9.7	0.0	9.7	* 25.8	41.9	6.5	57.0
			2 (N: 30)	3.3	0.0	10.0	0.0	26.7	* 46.7	13.3	58.9
Development of "programmed" philosophy of post-secondary education (that is, a philosophy flexible as to time conditions and areas of the province).	Retarded until metro areas become involved in a "reliable post-secondary program." Society demanding public service units to supply local needs, (for example, sectionalism in Canada). Better planning in five years.	No more attention paid to philosophy in future than now. Less and less emphasis on regional concepts and needs; population very mobile. "Programmed" intrinsically irrelevant modifier of "philosophy."	1 (N: 38)	0.0	23.7	* 28.9	21.1	10.5	10.5	5.3	57.0
			2 (N: 36)	2.8	11.1	27.8	* 16.7	22.2	13.9	5.6	55.6

Table 16 (continued)

Statement	Reason for prediction		Prediction no.	Probable date of occurrence (%)						Total competence (%)	
	Early	Late/Never		1970-71	1972-75	1976-80	1981-90	Later	Never		Perpetual problem
Much greater stress placed on educational objectives with institutions held accountable for achieving them (emphasis on greater productivity).	Present government stand on educational budgets evidence of widespread concern for accountability. Reputation for productivity very important--move toward accreditation has started.	Never completely solve the problem of measurement of objectives and achievement in education; work towards it only. If move is to autonomy, then each institution determines its own destiny.	1 (N: 41)	7.3	31.7	*	39.0	2.4	4.9	12.2	72.4
			2 (N: 40)	10.0	42.5	*	27.5	0.0	2.5	2.5	15.0
Decline of academician's influence on education.	Present shift in prestige and enrolment to vocational and/or technical side of our society. Declining now, support for purely academic learning is waning.	May decline but only insofar as there is an increase in participation by other segments of society. No such discernable trend; has not happened in last 700 years.	1 (N: 41)	7.3	31.7	*	19.5	9.8	14.6	17.1	63.4
			2 (N: 40)	5.0	20.0	22.5	*	7.5	10.0	32.5	2.5
Development in students, by teachers, of a philosophy suited to an era of greater leisure and complexity.	This trend present in our curriculum. Leisure considerations more prevalent in Continuing Education. Now a recognition of the value of liberal arts courses to prepare for greater complexity.	Complexity of what? School is a reflection of the work ethic so cannot reflect adequately the philosophy of leisure. Formal school will not be eliminated.	1 (N: 41)	4.9	14.6	*	26.8	39.0	2.4	12.2	66.7
			2 (N: 40)	10.0	17.5	*	25.0	22.5	12.5	2.5	10.0

The second statement, "re-introduction of the institutional concept by post-secondary education," implies acceptance of the first statement in this set. Perhaps a respondent's reason ("no abandonment hence no re-introduction") justifying a prediction on the first round of "never" exemplifies the feeling of a number of respondents who omitted their responses. For the first round of predictions, only 31 respondents indicated an answer while the actual number for round two was 30.

A relatively even distribution among the seven response categories characterized the reaction of respondents to the next statement, "development of 'programmed' philosophy of post-secondary education." The responses on the second round of predictions were distributed as follows: 2.8 percent for "1970-71," 11.1 percent for "1972-75," 27.8 percent for "1976-80," 16.7 percent for "1981-90," 22.2 percent for "later," 13.9 percent for "never," and 5.6 percent for "perpetual problem."

Accountability in education was the theme of the fourth statement in the set on philosophy. The emphasis on greater productivity in education will become increasingly evident before 1981 according to 78 percent and 80 percent of the respondents making their first and second predictions respectively.

The majority view of the first round predictions concerning the next statement, "decline of academician's influence on education," was that it would become significant by 1980. Following the second rounds of predictions, however, the majority view shifted to a later time period, that is, "1981-90."

As for the final statement, respondents in both rounds of predictions expect that, by 1980, the "development in students, by teachers,

of a philosophy suited to an era of greater leisure and complexity," will be significantly real.

The average total percentage competence for the six statements in this set is 64.2 percent. This figure is below the average total competence for all first predictions (66.8 percent) and even more so for all second predictions (69.9 percent).

Physical Plant

References to the physical plant of educational institutions make up the content of the statements presented in Table 17.

Almost three quarters (73.3 percent) of the respondents making their first predictions felt that "standardized components for construction of school facilities" would be in widespread use by 1980. In the second round of predictions, the proportion increased to exactly 75.0 percent of the participants for the same time period.

A majority of respondents on both rounds of predictions, do not anticipate that the second statement, "abandonment, by post-secondary education, of physical plant, in favor of electronic gadgetry," will ever occur; 61.9 percent said "never" on the first round of predictions whereas 51.3 percent were of that opinion on the second round.

The third statement, "year-round scheduling to counteract capital costs," was predicted to reach significant proportions within five years by 50.0 percent of those making their first predictions. The second round of predictions shifted the majority view to a later "probable date of occurrence" category; that is, 77.5 percent of the participants predicted year-round scheduling to be widespread by 1980.

Percentage competence associated with predictions relating to physical plant was average (range of 64.3 to 78.3 percent).

Table 17

Total Percentage Competence, Percentage Frequencies for Probable Date of Occurrence, and Reasons for Statements Concerned with Physical Plant

Statement	Reason for prediction		Predic- tion no.	Probable date of occurrence (%)						Total compe- tence (%)		
	Early	Late/Never		1970- 71	1972- 75	1976- 80	1981- 90	Later	Never		Perpetual problem	
Standardized components (modular) for construc- tion of school facilities.	Toronto and U.S. already implementing this; recent recommendations to Alberta Department of Education point to early adoption here.	Hopefully, there will be greater variety and creativity. Young people will reject standardization.	1 (N: 41)	4.9	39.0	*	29.3	9.8	4.9	4.9	7.3	68.3
			2 (N: 40)	10.0	37.5	*	27.5	0.0	2.5	7.5	15.0	70.8
Abandonment, by post- secondary education, of physical plant, in favor of electronic gadgetry, (for example, ETV offering complete formal educa- tional programs).	Gadgets now being used. Logical end will be complete programs in some areas by TV. Present investment in plant high, therefore no abandonment before 1980.	Direct personal contact bet- ween instructor and student in a school setting will continue. Tenacity of institutions will remain the same, (for example, the church).	1 (N: 42)	0.0	0.0	7.1	11.9	19.0	*	61.9	0.0	64.3
			2 (N: 39)	0.0	2.6	5.1	7.7	30.8	*	51.3	2.6	66.7
Year-round scheduling to counteract capital costs.	Cost-benefit studies have shown the feasibility and administrators have indicated its advantages. It remains to be used.	Always be period for "updat- ing" and filling-in; not a total program. Staff not willing to give vacations. Operating cost far greater financial problem. Make better use of one-shift system.	1 (N: 42)	2.4	47.6	*	31.0	9.5	7.1	0.0	2.4	74.6
			2 (N: 40)	10.0	27.5	*	40.0	7.5	2.5	7.5	5.0	78.3

Planning

The set on planning contains six statements and is shown in Table 18.

A shift in the majority view, to an earlier time period, took place between the first and second predictions about the first statement, "50% of all educational planning becoming programmed planning to cope with rapid changes." After the first prediction, the time period "1981-90" contained the "break-even" point, that is, the point by which half of the responses (exclusive of "perpetual problem" responses) had been made. In this case, a majority of 75.0 percent of the participants had made their prediction in the first three time periods. However, after tabulating the results of the second prediction, the "break-even" point was contained in the "1972-75" category--this time the majority was a marginal 48.8 percent of the respondents ("perpetual problem" responses excluded in arriving at the majority view).

The second statement, "50% of all long-range educational planning based on the priority of societal objectives," was predicted to materialize within this decade by a majority of respondents: 59.0 percent for the first round of predictions and 67.5 percent for the second round. A noticeable increase in self-assessed competence (60.7 percent to 69.2 percent) emerged with the second predictions for this statement.

The next statement, "sophisticated and intensive studies of individual institutions required to enable effective management, organization and control as related to educational purposes," is expected to become significant by the time period "1972-75" according to the majority view of respondents (52.5 percent), in their second round of predictions. This finding coincides with an earlier finding related to internal

Table 18

Total Percentage Competence, Percentage Frequencies for Probable Date of Occurrence, and Reasons for Statements Concerned with Planning

Statement	Reason for prediction		Prediction no.	Probable date of occurrence (%)						Total competence (%)		
	Early	Late/Never		1970-71	1972-75	1976-80	1981-90	Later	Never		Perpetual problem	
50% of all educational planning becoming programmed planning (creating and testing of alternative solutions) to cope with rapid changes.	Now operative. Will result from rapid escalation of costs. Necessary now to make continually changing long-range plans. More important as colleges become accredited.	This alternative probably obsolete in near future. Individual differences in pupils precludes such a high percentage of pre-packaging.	1 (N: 40)	0.0	22.5	25.0	*	27.5	10.0	12.5	2.5	58.3
			2 (N: 39)	2.6	*	46.2	25.6	5.1	5.1	12.8	2.6	62.4
50% of all long-range educational planning based on the priority of societal objectives.	Trend now present. Educational leaders aware that societal needs must determine the educational program and planning.	Long time to agree on objectives, let alone priorities. Political, chamber of commerce, empire building and other influences will continue to be prominent in future.	1 (N: 39)	5.1	23.1	*	30.8	23.1	10.3	0.0	7.7	60.7
			2 (N: 40)	10.0	30.0	*	27.5	12.5	7.5	2.5	10.0	69.2
Sophisticated and intensive studies of individual institutions required to enable effective management, organization and control as related to educational purposes.	Went through this in 1969.	Ten years needed to develop the authority structure, the evaluative techniques required, the personnel capabilities, the consensus about educational purposes and the orientation of institutions.	1 (N: 41)	2.4	39.0	*	26.8	22.0	0.0	0.0	9.8	65.9
			2 (N: 40)	7.5	*	45.0	25.0	10.0	5.0	2.5	5.0	71.7

Table 18 (continued)

Statement	Reason for prediction		Prediction no.	Probable date of occurrence (%)						Total competence (%)	
	Early	Late/Never		1970-71	1972-75	1976-80	1981-90	Later	Never		Perpetual problem
Adoption of extended school day (that is, 7 a.m. to 11 p.m.).	7 a.m. is already a reality in some schools. Projection of space needs for 1970-71. Is this consistent with increased leisure?	Plant will be open but never "keeping the bulk of students on a 7 to 11 school day." Education then similar to shift production plant.	1 (N: 41)	4.9	36.6	*	26.8	9.8	2.4	9.8	66.7
			2 (N: 39)	12.8	17.9	*	35.9	12.8	2.6	15.4	2.6
Provincial master plan of post-secondary and adult education (includes nature of best program for each region, locations of specific institutions, coordination of programs, plants, policies, expansion priorities and developments).	Worth Commission should get into this. Would expect educational planners to have master plan including studies of future needs.	Flexibility needed, not rigidity. Wipe out regional concepts (because of mobility of people and the rapid rate of change in technology).	1 (N: 42)	4.8	35.7	*	19.0	21.4	7.1	4.8	68.3
			2 (N: 40)	0.0	42.5	*	27.5	15.0	5.0	5.0	5.0
Use of data banks and universal computer analysis.	One office of institutional research is attempting to computerize a model of a university now.	Lack of personnel. The crisis developing in education cannot be solved through computer.	1 (N: 42)	2.4	28.6	*	45.2	11.9	9.5	0.0	69.0
			2 (N: 39)	0.0	41.0	*	38.5	10.3	5.1	2.6	2.6

governance. The relevant statement read "climate of cooperation, participation and interaction in the internal government of individual institutions," and the majority view in the second round of predictions (44.8 percent, in this case), concerning when the interaction was expected to become significant, was also "1972-75."

"Adoption of extended school day" is the fourth statement in the set on Planning. There was some disagreement amongst respondents on this statement, especially in the second round of predictions. Over one-third (35.9 percent) of the respondents opted for the time period of "1976-80" as their response for this statement; however, 15.4 percent said the extended school day would "never" be adopted.

The next statement deals with a "provincial master plan of post-secondary and adult education." According to 70.0 percent of the respondents on their second round of predictions, a master plan will be operative by 1980. If one extends the time period to 1991 for the advent of a provincial master plan for post-secondary education, the proportion of respondents making a prediction within that time increases to 85.0 percent.

The sixth and final statement is concerned with the "use of data banks and universal computer analysis." A relatively large proportion of the participants (76.2 percent for round one predictions and 79.5 percent for round two) felt this development would reach major proportions before 1981.

The predictions for the set on planning were made with total competence percentages ranging from 58.3 to 74.4.

Regionalism

Five statements appearing in Table 19 make up the set on regionalism.

With reference to the first statement, "regional boards established with responsibility for the total educational program within a region," 14.3 percent of the respondents, on the first round of predictions, thought this would "never" happen; the frequency rose to 25.0 percent on the second round of predictions.

Some controversy was in evidence with respect to the second statement, "development of 'city-states' to replace provincial or federal governments." For the first round of predictions, a convincing 58.5 percent of the respondents said "never" while 39.0 percent predicted "1981-90" or "later." For the second round of predictions, respondents saying "never" dropped in frequency to 50.0 percent and those predicting "1981-90" or "later" increased in frequency to 42.5 percent.

The next two statements, "Boards of Governors for the 3 Agricultural and Vocational Colleges," and "Boards of Governors for the 2 Institutes of Technology," will be dealt with together since their content is very closely related; moreover, the frequency distribution of their responses is very similar.

For both statements, an identical 56.4 percent of the respondents, in the second round of predictions, held that "1972-75" was the time period when these educational institutions would have Boards of Governors. It should be noted, however, that there was some dissent in relation to these statements: 12.8 percent and 15.4 percent of the respondents, in the second round of predictions, checked "never" as their opinion.

The findings for the next statement, "disappearance of Boards of Governors at the post-secondary level," are compatible with the findings of the two previous statements. The majority opinion in the first and second rounds of predictions, 51.2 and 53.8 percent, respectively,

Table 19

Total Percentage Competence, Percentage Frequencies for Probable Date of Occurrence,
and Reasons for Statements Concerned with Regionalism

Statement	Reason for prediction		Prediction no.	Probable date of occurrence (%)					Total compe- tence (%)
	Early	Late/Never		1970- 71	1972- 75	1976-1981- 80 90	Later	Never	
Regional boards (for example, metro Calgary, Edmonton) established with responsibility for the total educational program within a region.	Already accomplished in Calgary. Early because of financial controls on school boards.	Need for provincial or na- tional jurisdiction, other- wise fragmentation. Constitutional barriers. Two universities under one board? Too many programs go beyond needs of metropolitan area.	1 (N: 40)	4.8	4.8	21.4	14.3	14.3	59.5
			2 (N: 40)	2.5	17.5	22.5	10.0	25.0	65.0
Development of "city- states" to replace provincial or federal governments.	Political structural change slow. Not sufficient population.	'Far out' idea. Future planners will discourage urbanization. Shift instead to continental, hemisphere, and finally world government, municipality will remain.	1 (N: 41)	0.0	0.0	0.0	26.8	* 58.5	58.5
			2 (N: 40)	0.0	0.0	2.5	37.5	* 50.0	63.3
Boards of Governors for the 3 Agricultural and Vocational Colleges.	Already proposed by Committee on Post-Secondary Education. Next government will probably implement.	Contrary to concept of administration by Department of Agriculture. Concept of boards criticized now. Trend away from boards; decisions best made by students and faculties, (subject to Commission approval).	1 (N: 41)	2.4	* 48.8	14.6	4.9	22.0	71.5
			2 (N: 39)	0.0	* 56.4	17.9	7.7	12.8	75.2

Table 19 (continued)

Statement	Reason for prediction		Prediction no.	Probable date of occurrence (%)						Total competence (%)	
	Early	Late/Never		1970-71	1972-75	1976-80	1981-90	Later	Never		Perpetual problem
Boards of Governors for the 2 Institutes of Technology.	Already proposed by Committee on Post-Secondary Education. Next government will probably implement.	Department of Education will not allow this. Institutes would become technical universities. Training institutions will not be given the "freedoms" of learning institutions, that is, universities.	1 (N: 41)	2.4	46.3	* 24.4	7.3	4.9	14.6	0.0	69.1
			2 (N: 39)	0.0	* 56.4	12.8	5.1	10.3	15.4	0.0	72.6
Disappearance of Boards of Governors at the post-secondary level, (for example, public colleges).	Pressure for this soon. Boards of Governors may change in character. One-tiered systems of government of colleges will be examined.	No reason for dispensing with local boards: effective means of relating the institution to the local public. Also trusteeship.	1 (N: 41)	0.0	2.4	12.2	12.2	19.5	* 51.2	2.4	58.5
			2 (N: 39)	0.0	5.1	17.9	2.6	20.5	* 53.8	0.0	62.4

converged on the "never" category. In summary, the findings of the third and fourth statements suggest that the Agricultural and Vocational Colleges and the Institutes of Technology will soon have boards, while the final statement's findings indicate Boards of Governors are here to stay.

The lowest total percentage competence for this set (58.5 percent) was given for the initial prediction in connection with the development of "city-states." On the other hand, the highest total competence percentage occurred when respondents were making their second prediction about "Boards of Governors for the 3 Agricultural and Vocational Colleges."

Role

The set having to do with role of post-secondary educational institutions has eight statements (see Table 20).

The first statement "a specialized function and role for each institution in Alberta," revealed two basic predictions in the second round: 28.2 percent of the respondents said "1972-75" while 23.1 percent stated "never" as their reaction to the statement.

With reference to the next statement, "University of Alberta and University of Calgary primarily graduate institutions," respondents tended to predict a late "probable date of occurrence." The majority opinion occurred in the time period of "later" for both the first and second rounds of predictions (78.0 and 72.5 percent, respectively). However, a relatively large percentage of the participants on rounds one and two of predictions (22.0 and 27.5 percent, respectively) did not foresee that this development would ever occur.

"Institutes of Technology become community colleges," is the third statement in this set. Respondents generally predicted in the same pattern for their second prediction as they had the first time;

Table 20

Total Percentage Competence, Percentage Frequencies for Probable Date of Occurrence, and Reasons for Statements Concerned with Role

Statement	Reason for prediction		Prediction no.	Probable date of occurrence (%)					Total competence (%)
	Early	Late/Never		1970-71	1972-75	1976-80	1981-90	Later	
A specialized function and role for each institution in Alberta.	Now the case. The government has specified this, for example, the White Paper does this for Lethbridge, Section 68g of the Universities Act encourages the Commission to do this to U. of A. and U. of C.	Concept of "specialized function" based on concept of regional needs. Basic reason for area colleges is accessibility; hence colleges will become broad rather than specialized in function.	1 (N: 42)	4.8	16.7	11.9	* 21.4	14.3	68.3
			2 (N: 39)	12.8	28.2	* 12.8	5.1	10.3	72.6
University of Alberta and University of Calgary primarily graduate institutions.	Pressure now for this. Current emphasis on graduate studies at universities, development of college system and opening of new university. Take this long for "graduate" orientation focus.	Not unless other institutions become full universities. Research better done by non-university research institutions in the hard sciences. Too expensive. Have resources for efficient undergraduate study.	1 (N: 41)	0.0	0.0	14.6	31.7	* 31.7	66.7
			2 (N: 40)	0.0	2.5	7.5	25.0	* 37.5	66.7
Institutes of Technology become community colleges.	Change the prediction to a later date. Present government missed its chance.	Province-wide rather than local or community function. May do so in form and function but not in name--freedom dies hard.	1 (N: 40)	2.5	20.0	* 35.0	7.5	5.0	65.8
			2 (N: 40)	0.0	30.0	* 35.0	7.5	5.0	73.3

Table 20 (continued)

Statement	Reason for prediction		Prediction no.	Probable date of occurrence (%)							Total competence (%)	
	Early	Late/Never		1970-71	1972-75	1976-80	1981-90	Later	Never	Perpetual problem		
Agricultural and Vocational Colleges become community colleges.	Change the prediction to a later date. Present government missed its chance.	Contrary to time-listed concept of devotion to agriculture. Community colleges are "general," not distinct in their purposes.	1 (N: 41)	2.4	39.0	*	34.1	9.8	4.9	9.8	0.0	69.9
			2 (N: 39)	2.6	41.0	*	33.3	5.1	10.3	7.7	0.0	76.1
Distinction of role between institutionalized post-secondary education on one hand and education offered through private auspices and through general communications on the other hand.	Now recognized and accepted and defined in Alberta (including the active promotion of ETV). News media have alerted the public to educational opportunities.	Distinctions will disappear or not arise; cooperation must occur. "Inhouse" education is necessary because of lag between industry and education. Only an artificial distinction.	1 (N: 38)	15.8	7.9	13.2	*	18.4	13.2	13.2	18.4	61.4
			2 (N: 38)	21.1	13.2	*	13.2	5.3	2.6	26.3	18.4	56.1
Multi-campus course offerings (student takes part of his training at one college and the remainder at another college(s)).	Money is short so sacrifice autonomy and completeness. Began long ago and is continuing, for example, Faculties of Arts and Education at the University of Alberta.	With the "specialties" being de-emphasized, this trend, if there is one, could also disappear in total.	1 (N: 42)	4.8	21.4	*	38.1	11.9	11.9	2.4	9.5	63.5
			2 (N: 39)	12.8	33.3	*	12.8	10.3	15.4	12.8	2.6	70.9

Table 20 (continued)

Statement	Reason for prediction		Prediction no.	Probable date of occurrence (%)						Total competence (%)	
	Early	Late/Never		1970-71	1972-75	1976-80	1981-90	Later	Never		Perpetual problem
Production-oriented post-secondary institutions becoming environmental-oriented.	All education should be environmental-oriented. Pollution problems may force this. With more affluence, we can turn away from production, per se, to "higher" interests.	Poor question. Definition of terms? Perhaps "later" would be a better response (than "never") Certainly occupational preparation will be a strong purpose for the foreseeable future.	1 (N: 38)	0.0	13.2	* 31.6	26.3	10.5	2.6	15.8	57.9
			2 (N: 39)	5.1	15.4	* 30.8	7.7	28.2	5.1	7.7	58.1
Greater overlap of post-secondary educational institutions' purposes to cater to the variety of students' needs.	Already under way. Universities becoming more conscious of vocational students. Colleges attempting to attract and hold local students in either the vocational or university transfer programs.	An irreversible trend toward greater specialization and toward greater economy by avoiding duplication. Not sure what this statement means and have consequently marked the "never" category.	1 (N: 40)	0.0	32.5	* 45.0	7.5	2.5	5.0	7.5	65.0
			2 (N: 40)	12.5	32.5	* 22.5	5.0	2.5	20.0	5.0	67.5

that is, the percentage frequencies were identical in four out of the seven prediction categories. Thirty-five percent of the respondents, in each of the two rounds of predictions, identified "1976-80" as the time period when Alberta's Institutes of Technology would become community colleges. However, again a comparatively large proportion of the participants disagreed: 30.0 and 22.5 percent, in the first and second rounds of predictions, respectively; these people felt that the Institutes would "never" become community colleges.

For the fourth statement, "Agricultural and Vocational Colleges become community colleges," there was more agreement among respondents than for the previous statement. Over three-quarters (75.5 percent in the first round and 76.9 percent for the second) of the respondents anticipated a change in role, by 1980, for Alberta's Agricultural and Vocational Colleges. When compared with the previous statement, "Institutes of Technology become community colleges," this statement, "Agricultural and Vocational Colleges become community colleges," showed a considerably smaller proportion of respondents saying "never." For the first predictions, 30.0 percent of the respondents felt that the Institutes would "never" become community colleges as compared with 9.8 percent who felt that way in connection with the Agricultural and Vocational Colleges; the second predictions showed 22.5 percent as opposed to 7.7 percent.

A significant finding in connection with the next statement, which deals with the distinction between institutionalized post-secondary education and "education offered through private auspices," is that over one-quarter (26.3 percent) of the respondents, making their second predictions, were of the opinion that this would "never" occur. While the

frequency of 26.3 percent nearly doubled the first round's "never" predictions (13.2 percent), the corresponding total percentage competence in predicting for the second time was down from 61.4 percent to 56.1 percent.

The predictions for the sixth statement, "multi-campus course offerings," lacked consensus; especially on the second round of predictions. The percentage frequencies in each of five time periods (excluding the "1972-75" and "perpetual problem" categories) ranged from a low of 10.3 percent in the "1981-90" category to a high of 15.4 percent in the "later" category.

In relation to the next statement, the majority view for both rounds of predictions was that, by 1980, "production-oriented post-secondary institutions [would become] environmental-oriented." The two percentages of self-assessed competence for the above statement, however, were considerably lower than average: 57.9 and 58.1 percent for the first and second rounds of predictions, respectively, compared with the overall averages of 66.8 and 69.9 percent.

The final statement in the set on the role of post-secondary educational institutions reads "greater overlap of post-secondary educational institutions' purposes to cater to the variety of students' needs." Twenty percent of the respondents, in the second round of predictions, indicated "never" as their response to this statement. Three-quarters of the participants indicated responses ranging from "1970-71" to "later" while the other five percent perceived the overlap as a "perpetual problem."

The tendency to predict either "1972-75," "1976-80," or "1981-90," as opposed to "never" for a "probable date of occurrence" perhaps best

summarizes the nature of the response distributions for the eight statements in the set on role. In other words, the frequency distributions for this set were often bi-modal in nature.

Staff

Table 21 presents the statements, reasons, predictions and competence relating to the subject of educational staff.

The first statement in the set on staff is "formation of strong association of post-secondary instructors." The majority opinion for this statement shifted between predictions from the "1976-80" time period to the (earlier) "1972-75" time period. In comparing frequencies of responses for the first five years on the time continuum of "1970-71" to "never," Table 21 shows 45.2 percent for the first prediction and 57.5 percent for the second prediction.

With reference to the next statement, a sizeable proportion of the respondents, 35.0 percent for the first prediction and 28.2 percent for the second, thought that there would "never" be "compulsory work experience for teachers at regular time intervals." The majority opinion, for both rounds of predictions, perceived "later" (that is, after 1990) as the "probable date of occurrence" for compulsory work experience by teachers.

The final two statements are: "shortage of academic and non-academic staff in post-secondary education," and "surplus of post-secondary graduates." Two virtually dichotomous points of view seemed to emerge from the reasons given for the first predictions of the two statements. One point of view had to do with economic supply and demand while the respondents with the other view interpreted the statements from a "philosophical," or "idealistic" vantage point. Generally, respondents

Table 21

Total Percentage Competence, Percentage Frequencies for Probable Date of Occurrence, and Reasons for Statements Concerned with Staff

Statement	Reason for prediction		Prediction no.	Probable date of occurrence (%)						Total competence (%)
	Early	Late/Never		1970-71	1972-75	1976-80	1981-90	Later	Never	
Formation of strong association of post-secondary instructors.	Examples: U. of A. this year, Ontario-wide faculty union wanting to bargain directly with government. An association already exists will grow in strength.	Trend of militant faculty has already peaked. Key word: strong. Little chance of this because of diverse and autonomous interests.	1 (N: 42)	9.5	35.7	*	14.3	2.4	4.8	66.7
			2 (N: 40)	5.0	52.5	25.0	5.0	2.5	7.5	70.8
Compulsory work experience for teachers at regular time intervals.	This point has been either discussed or emphasized at every major conference in the past two years. Necessary in the technical fields.	Assumed the "work experience" was non-teaching. Increasing demand for <u>truly professional</u> teachers may make the time demands unrealistic.	1 (N: 40)	0.0	5.0	20.0	15.0	17.5	35.0	60.8
			2 (N: 39)	0.0	20.5	15.4	5.1	17.9	28.2	61.5
Shortage of academic and non-academic staff in post-secondary education.	Shortage already; will remain because of rising enrolments. Shortage of "new breed" staff who will make post-secondary institutions part and parcel of community.	No shortage foreseen if graduates follow their profession. Projections indicate surpluses, particularly in public service. Always be shortage of top-flight quality. "Very unlikely" preferred to "never."	1 (N: 40)	20.0	27.5	2.5	5.0	7.5	30.0	66.7
			2 (N: 40)	10.0	7.5	10.0	10.0	20.0	30.0	69.2

Table 21 (continued)

Statement	Reason for prediction		Predic- tion no.	Probable date of occurrence (%)						Total compe- tence (%)		
	Early	Late/Never		1970- 71	1972- 75	1976-80	1981- 90	Later	Never		Perpetual problem	
Surplus of post-secondary graduates.	In evidence <u>now</u> . Surplus of teachers. Canada Manpower Centre has increased demand from people who want jobs.	Never! Not thinking of them as purely for labor market. Education for its own sake. May be shortage of employment but this is an economic and organizational problem. Will not be surplus per se.	1 (N: 42)	11.9	21.4	*	16.7	9.5	7.1	28.6	4.8	68.3
			2 (N: 40)	22.5	*	30.0	5.0	5.0	2.5	27.5	7.5	73.3

with the first point of view gave ("early") reasons such as "shortage already" and "surplus of teachers" while those holding "philosophical" points of view said "always be shortage of top-flight quality" or "will not be surplus per se" for their ("late/never") reasons. Some of the respondents holding an "idealistic" point of view may have accounted for the unusually large proportion of "never" responses (from 27.5 percent to 30.0 percent) for these two statements.

The majority opinion of the statement on shortage of staff shifted between predictions from "1972-75" to a surprisingly much later "date": "later" (than 1990). In contrast, the majority opinion for the final statement, "surplus of post-secondary graduates," moved from "1976-80" to an earlier time period: "1972-75."

As in the set on role of post-secondary educational institutions, this set (excluding the first statement) revealed bi-modal response distributions. The first mode occurred anywhere from the time period of "1970-71" to "later" while the second mode occurred in the "never" category.

Teaching Methods

The set of statements concerned with teaching methods is presented in Table 22.

For the first two statements, "adaptations of present teaching methods to educate the disadvantaged 25% of Canadians," and "research on educational methods to determine how to educate all 17-18 year-olds further as well as any people who wish part-time education," the majority view, in both rounds of predictions, was that these developments would become significant by 1980. No one checked "never" for these statements.

Table 22

Total Percentage Competence, Percentage Frequencies for Probable Date of Occurrence, and Reasons for Statements Concerned with Teaching Methods

Statement	Reason for prediction		Prediction no.	Probable date of occurrence (%)						Total competence (%)		
	Early	Late/Never		1970-71	1972-75	1976-80	1981-90	Later	Never		Perpetual problem	
Adaptations of present teaching methods to educate the disadvantaged 25% of Canadians.	Education has neglected these people; they are becoming organized and pressing for change so their needs are being recognized.	Need recognized but preparation of appropriate teachers slow. Who are they? Hopefully, in 10 years we should train for jobs and not welfare. Much talk, no action.	1 (N: 40)	2.5	32.5	*	45.0	12.5	2.5	0.0	5.0	67.5
			2 (N: 40)	10.0	30.0	*	27.5	12.5	7.5	0.0	12.5	73.3
Research on educational methods to determine how to educate all 17-18 year-olds further as well as any people who wish part-time education.	This should come under the purview of the Worth Commission. Some is underway now.	Expensive. Little research now being done by colleges; it will take at least 10 years. Issue will be forced as fewer eligible for job vacancies.	1 (N: 41)	4.9	31.7	*	39.0	17.1	0.0	0.0	7.3	63.4
			2 (N: 40)	0.0	40.0	*	45.0	7.5	0.0	0.0	7.5	65.0
50% of the instructional staff in institutions made up of para-professionals and employed students.	Not far from 50% now. Economy, involvement and less separation of age and information among teachers and taught. Scarcity of professional personnel.	Surplus now of professionals. Professionals to stay above 50%; much of para-professional work done by machines. Use surplus academicians rather than professionals.	1 (N: 41)	0.0	7.3		22.0	* 26.8	17.1	24.4	2.4	59.3
			2 (N: 40)	2.5	25.0	*	35.0	7.5	12.5	12.5	5.0	66.7

Table 22 (continued)

Statement	Reason for prediction		Predic- tion no.	Probable date of occurrence (%)						Total compe- tence (%)	
	Early	Late/Never		1970- 71	1972- 75	1976- 80	1981- 90	Later	Never		Perpetual problem
Compulsory teaching certificates for instructors in post- secondary institutions.	Already a continuing issue. The ATA will press for this especially as colleges diversify.	Unacceptable. Educational institutions becoming less bound by rules; teaching-learning in post- secondary institutions will simply not lend itself to this.	1 (N: 42)	2.4	2.4	16.7	23.8	* 4.8	47.6	2.4	68.3
			2 (N: 40)	7.5	7.5	12.5	7.5	* 15.0	47.5	2.5	69.2
Most educational projects contracted to private firms specializing in designing educational programs.	College faculties should not be required to research; too much time and cost. Programs can be more efficiently designed by private firms.	Places education on a "production" basis; ignores development of the individual and the society. Trend toward centralization of services and disappearance of private institutions. Responsibility of school boards.	1 (N: 41)	0.0	2.4	2.4	9.8	17.1	* 65.9	2.4	52.8
			2 (N: 39)	2.6	5.1	7.7	10.3	* 25.6	46.2	2.6	59.8

The next statement is "50% of the instructional staff in institutions made up of para-professionals and employed students." Almost one-quarter (24.4 percent) of the respondents, on the first round of predictions, felt that this would "never" occur. For the second round of predictions, however, the proportion of respondents saying "never" dropped to one-eighth (12.5 percent).

"Compulsory teaching certificates for instructors in post-secondary institutions" is the fourth statement in this set. If teaching certificates are made compulsory for post-secondary instructors, it will not happen for some time, according to a majority of respondents. For both predictions, barely 50.0 percent of the responses had been made by the time period of "later." Of the remaining half of the participants, 47.6 percent in the first round of predictions and 47.5 percent in the second round said that teaching certificates would "never" be required for post-secondary instructors.

For the final statement, "most educational projects contracted to private firms specializing in designing educational programs," nearly two-thirds (65.9 percent) of the respondents making their first prediction felt that this would "never" happen. However, the total perceived competence in making a judgment as to the "probable date of occurrence" was a low 52.8 percent (14 percentage points below the average). The second prediction showed a noticeable decrease (19.7 percent) in the proportion of respondents saying "never"; the proportion was down to 46.2 percent. Two other changes occurred between predictions: the majority view shifted from "never" to "later" while the total percentage competence climbed seven percentage points to 59.8.

In general, the total percentage competence was lower than average

for the set on teaching methods. Whereas the overall average of total percentage competence for the first predictions is 66.8 percent, the average for this set was 62.2 percent. Similarly, for the second predictions, the overall average competence is 69.9 percent as compared to 66.8 percent for this set.

Training

Three statements, shown in Table 23, constitute the set on training.

Thirty percent of the respondents, on the first round of predictions, said that the first statement, "great time lag between the identification of emerging technologies and the turning out of people qualified in these areas," is a "perpetual problem." On the second round of predictions, however, only 20.0 percent of the participants identified the lag as a "perpetual problem." A noticeable increase (7.5 to 32.5 percent) occurred in the "never" category from prediction one to prediction two. The increase, between predictions, in the above proportion of respondents saying "never," was a factor in shifting the majority opinion from "1972-75" to "1976-80."

The second statement, "provision of a broad enough academic and technical background so that students' skills are not obsolete in five years," is concerned with the "breadth-depth" issue. The majority (51.2 percent) of respondents making their second predictions were of the view that this problem would reach significant proportions by the mid-seventies, that is, by "1972-75."

"Demand for greater variety of more narrowly and more intensively trained technicians and university graduates," is the final statement in this set. Majority opinions (excluding "perpetual problem" responses)

Table 23

Total Percentage Competence, Percentage Frequencies for Probable Date of Occurrence, and Reasons for Statements Concerned with Training

Statement	Reason for prediction		Prediction no.	Probable date of occurrence (%)							Total competence (%)
	Early	Late/Never		1970-71	1972-75	1976-80	1981-90	Later	Never	Perpetual problem	
Great time lag between the identification of emerging technologies and the turning out of people qualified in these areas.	People generally aware of the technological revolution, for example, comprehensive high schools, vocational colleges, institutes of technology, etc. Almost a truism. Definition of "great time lag?"	Never. Better educational planning now. Reason for educational programs, as well as need, will be sought. College Advisory Committees minimize gap. Gap will shorten as techniques develop.	1 (N: 40)	17.5	* 22.5	12.5	10.0	0.0	7.5	30.0	70.8
			2 (N: 40)	15.0	17.5	* 15.0	0.0	0.0	32.5	20.0	71.7
Provision of a broad enough academic and technical background so that students' skills are not obsolete in five years.	Happening now. Acquired with the rapidly changing technologies.	Not a problem. History shows that changes always come faster than expected. Matter of degree; some parts of specific skills will always be outdated in 5 years.	1 (N: 40)	15.0	15.0	22.5	7.5	7.5	5.0	27.5	70.8
			2 (N: 39)	17.9	* 33.3	15.4	5.1	0.0	7.7	20.5	76.1
Demand for greater variety of more narrowly and more intensively trained technicians and university graduates.	Employers making this demand now. Until goals are changed economic interests foremost.	Going in the other direction; produce more generalists. Knowledge, technology, etc. change so fast that people in one era are not trained at all for the next.	1 (N: 40)	5.0	22.5	17.5	17.5	0.0	17.5	20.0	70.0
			2 (N: 39)	17.9	23.1	* 10.3	5.1	5.1	25.6	12.8	69.2

for both predictions (45.0 and 51.3 percent, respectively) held that the above development would become crucial in the seventies.

Close examination, of the first and second predictions in the "never" and "perpetual problem" categories for the set on training, reveals a consistent pattern. The responses in the "perpetual problem" category tended to decrease from the first round of predictions to the second round, while the percentage frequency in the "never" category tended to increase from the initial to the final round of predictions.

Tuition Fees

The set on tuition fees contains four statements and is presented in Table 24.

The first three statements in this set could be logically thought of as being on a time continuum with "14 years of free public education" occurring prior to the abolition of tuition fees, while the third statement, "annual salary for university students," would occur (if at all) in the most distant future. The majority opinions of the second round of predictions confirms the above sequence of events for these three statements. More specifically, a majority of respondents predict that "14 years of free public education" will be a reality by 1980; "free post-secondary education" will occur within two decades; and an "annual salary for university students" will be paid "later."

There is, however, considerable disagreement in relation to these three statements. The disagreement is reflected by such "late/never" reasons as "education ought to be worked for to develop initiative," or "nothing is free," or "detest trend of codling." Another (much more tenuous) manifestation of the disagreement might be the relatively large proportion of respondents saying these developments will "never" occur.

Table 24

Total Percentage Competence, Percentage Frequencies for Probable Date of Occurrence, and Reasons for Statements Concerned with Tuition Fees

Statement	Reason for prediction		Predic- tion no.	Probable date of occurrence (%)						Total compe- tence (%)		
	Early	Late/Never		1970- 71	1972- 75	1976- 80	1981- 90	Later	Never		Perpetual problem	
14 years of free public education.	First step to abolishment of fees. Already being pressed by student associations and some members of community and government.	Will persist indefinitely. Impossibility of governments to finance. Also, education ought to be worked for to develop initiative.	1 (N: 41)	2.4	7.3	36.6	*	31.7	9.8	9.8	2.4	66.7
			2 (N: 40)	5.0	12.5	*	35.0	25.0	7.5	15.0	0.0	72.5
Free post-secondary education (no tuition fees).	Already being pressed by student associations and some members of community and government.	Nothing is free. Government encouraging higher fees. Those benefiting should pay (limits mobility). Would occur only with socialism. Financial establishment will prevent this.	1 (N: 41)	2.4	4.9	22.0	*	39.0	17.1	12.2	2.4	66.7
			2 (N: 40)	2.5	7.5	32.5	*	10.0	22.5	22.5	2.5	72.5
Annual salary for university students.	Already discussed in U.S.A. Necessary for equality of educational opportunity.	Can get assistance now; detest trend of codling. Present 4-5 year programs to inflexible; possible though for career education.	1 (N: 41)	0.0	4.9	2.4	24.4	*	29.3	36.6	2.4	61.8
			2 (N: 40)	0.0	5.0	10.0	25.0	*	25.0	32.5	2.5	64.2
Full financial support of post-secondary educational institutions by students.	Consensus on Part 2 (first round of predictions) hence no reasons requested.		1 (N: 39)	0.0	0.0	0.0	0.0	0.0	0.0	*	100.0	74.4

This is especially noticeable for the statement "annual salary for university students" where approximately one-third (36.6 and 32.5 percent for the first and second rounds, respectively) of the respondents chose "never" as their response.

The final issue of the set on tuition fees was the only one of the study showing complete consensus. All the respondents (100 percent) making their first (and only, in this case) prediction said that "full financial support of post-secondary educational institutions by students" would "never" occur.

Vocational-Technical Education and Academic Education

The final set to be discussed in this section is concerned with vocational-technical education and academic education (see Table 25).

"Community pressure to have the college year lengthened" was the first statement in this set. The majority opinion for the first and second predictions (53.6 and 70.9 percent, respectively) was that, by 1975, the college year would be lengthened from seven and one-half months to nine months.

The second statement reads "integration of university transfer students with students in other programs in the community colleges." Over two-thirds (67.5 percent) of the respondents making their second prediction, expect that, by 1980, the development will have reached "such proportions that it will be clearly recognized by a majority of people affected by it."

Relatively high total percentage competence was recorded with respect to the predictions in this set; the competence ranged from 72.5 percent to 80.7 percent. The assessed competence of 80.7 percent was made with reference to the statement "community pressure to have the

Table 25

Total Percentage Competence, Percentage Frequencies for Probable Date of Occurrence, and Reasons for Statements Concerned with Vocational-Technical Education and Academic Education

Statement	Reason for prediction		Prediction no.	Probable date of occurrence (%)						Total competence (%)	
	Early	Late/Never		1970-71	1972-75	1976-80	1981-90	Later	Never		Perpetual problem
Community pressure to have the college year lengthened. (The college year, at present, is based on the university year which is 7 1/2 months; Vocational-Technical courses at the Institutes of Technology and the Agricultural and Vocational Colleges run for 9 months.)	Expense of facilities such as to demand this. Already being examined. Increasing pressure by community and government. The universities will be involved too.	Institutions may operate 12 months but not the year of a student; semesters and quarters likely solution. Alternative methods will be introduced. Lifelong education will de-emphasize concentrated periods of education and emphasize moving in and out of the educational system.	1 (N: 41)	7.3	* 46.3	31.7	2.4	0.0	7.3	4.9	74.8
			2 (N: 38)	26.3	* 44.7	18.4	0.0	2.6	5.3	2.6	80.7
Integration of university transfer students with students in other programs (Continuing Education, Vocational, Technical, Up-Grading) in the community colleges.	Its happening now. Shared facilities: U. of C. and SAIT. Regular students taking extension courses. University credit for SAIT-NAIT subjects.	University extremely jealous of its status position. Have completely different orientations; different goals and ideals.	1 (N: 40)	10.0	32.5	* 20.0	15.0	12.5	5.0	5.0	74.2
			2 (N: 40)	17.5	27.5	* 22.5	10.0	10.0	5.0	7.5	72.5

college year lengthened": that percentage was the highest for any prediction made in the study.

PATTERNS OF PREDICTION

Introduction

This section of Chapter 4 examines the respondents' patterns of prediction. To begin with, changes which occurred from the first to the second prediction are discussed. Following this, the chi-square test for significant differences is used to compare prediction patterns of respondents grouped on the basis of age, and education.

Changes from First to Second Prediction

Four comparisons are made with reference to the changes which occurred between the two predictions. The comparisons involve: (1) "probable date of occurrence," (2) majority opinion, (3) degree of competence, and (4) individual response behavior.

Probable date of occurrence. Table 26 presents a comparison of the percentage frequency distributions, in "probable date of occurrence" categories, for the first and second predictions.

There was a tendency, by respondents making their second predictions, to predict earlier "probable date[s] of occurrence" than they had on round one. Whereas 56 statements showed "no change" (less than five percent variation) in the frequency of responses for the "1970-71" time period, 38 of the remaining 41 statements recorded an increase in frequency of five percent or more for the same time period. Similarly, the "1972-75" time period was chosen more often on the second round of predictions than had been the case previously. More specifically, the number of statements (40), showing increases of five percent or more in the

Table 26

Comparison of Percentage Frequency Distributions
for Two Predictions

	Probable date of occurrence (N: 97 statements)					Perpetual problem
	1970-71	1972-75	1976-80	1981-90	Later	Never
"Same" (less than 5% change")	56	37	45	41	59	62
Increase of 5% or more	38	40	20	4	25	24
Decrease of 5% or more	3	20	32	52	13	11
Net gain (+) or loss (-)	+35	+20	-12	-48	+12	+13
						-10

"1972-75" category, outnumbered those showing decreases of five percent or more (20 statements); the result was a net gain of 20 statements showing increases.

One "probable date of occurrence" category which experienced a loss was "1981-90." For 52 statements, five percent or more of the respondents abandoned their first prediction of "1981-90" in favor of some other prediction.

Other less pronounced shifts (from round one to round two predictions) involved tendencies, by respondents, to make more "later" or "never" predictions but to make fewer predictions involving the time period "1976-80" or the category of "perpetual problem." The next prediction pattern change to be examined, relating to majority-opinion, bears out most of the same tendencies discussed above.

Majority-opinion. Figure 1 denotes the relationship between first and second predictions as far as the majority-opinion time periods are concerned. The majority-opinion indicates the time period by which 50 percent of the respondents have made their prediction. Since the "perpetual problem" category covers the entire time continuum ("1970-71" to "never," in this case), its responses are excluded in arriving at the majority-opinion.

Only two time periods, "1972-75," and "Later" showed an increase in the frequency of majority-opinions. The "1972-75" time period showed the greatest increase in majority-opinions: 22.2 to 33.0 percent for the first to the second prediction, respectively. A comparatively small increase in majority-opinions was recorded in the "later" category.

Of the time periods experiencing decreases, the "1981-90" category showed the greatest decline in majority-opinions. That category's

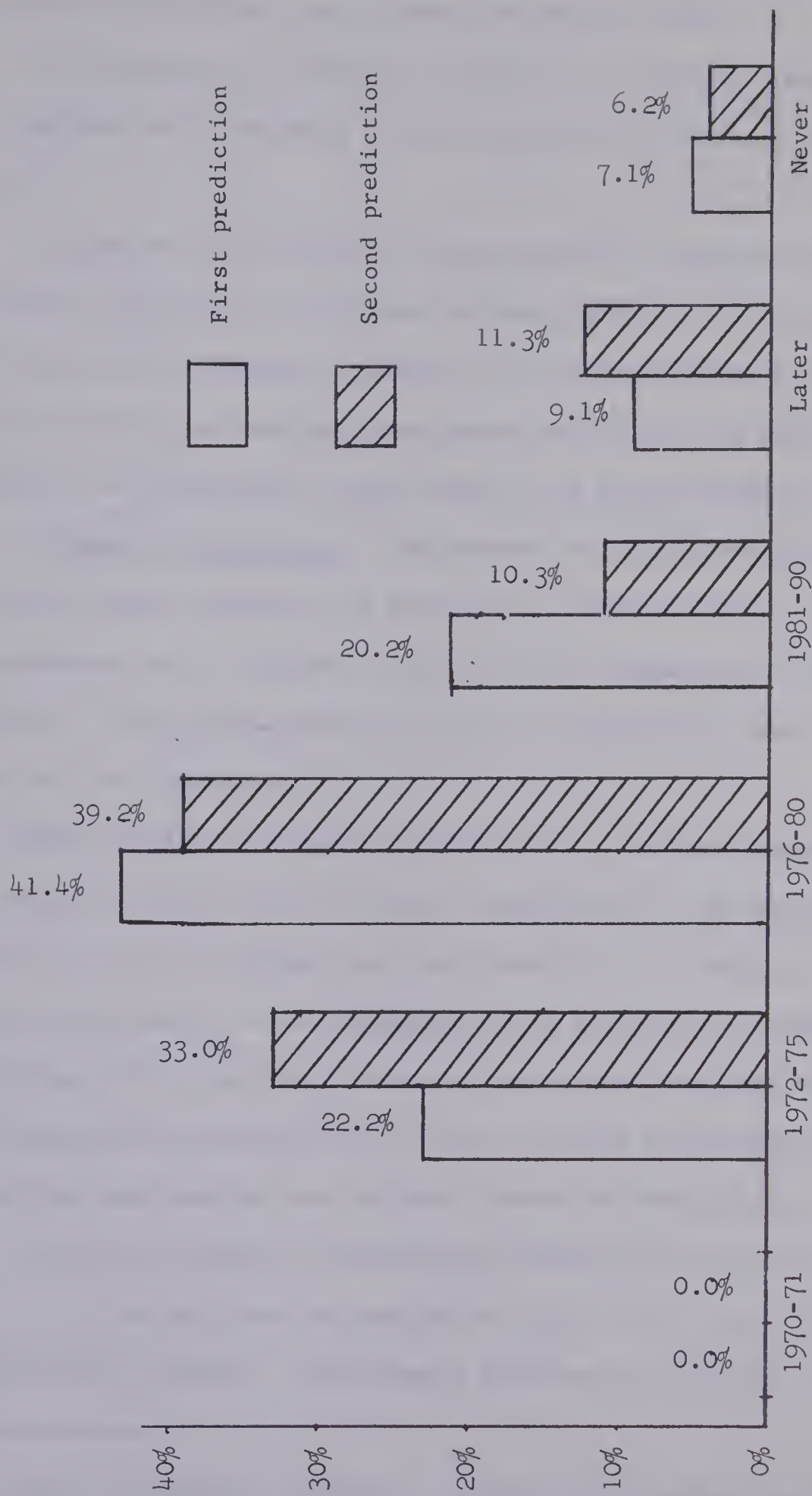


Figure 1
Frequency Distribution of Majority-Opinion Time Periods
for Two Predictions

frequency of majority-opinions dropped by virtually half (20.2 percent to 10.3 percent) from round one to round two predictions.

An interesting "finding" in regards to majority opinions, is that, in no instance was a majority opinion recorded for the time period of "1970-71."

In general, the majority-opinion tended to remain in the same prediction category for both rounds of predictions: this was the case for 54 out of 97 statements. However, for 30 statements, the majority-opinion shifted to an earlier time period while, for the remaining 13 statements, the "break-even" point moved to a later category.

Degree of competence. Respondents were asked to make an assessment of their own competence in predicting "probable date(s) of occurrence" for statements and to indicate their perceived competence in one of three categories. The three alternatives open to respondents were: high, medium, and low competence.

For calculation purposes, high, medium, and low competence were given weights of three, two, and one, respectively. The total percentage competence for each statement was calculated by: (1) adding all of the weights corresponding to the responses for a particular statement, (2) dividing (1) by the total possible competence¹ for that statement, and (3) multiplying the fraction by 100 to obtain a percentage. These calculations were carried out for both rounds of predictions.

As shown in Table 27, the average total percentage competence was higher in the second round of predictions than in the first (69.9 percent as against 66.8 percent). The highest and lowest percentages of second

¹Total possible competence: number of respondents making predictions for a statement x the weight (three) for high competence.

Table 27

Mean and Range of Total Percentage Competence^a
for Two Predictions

Prediction number	Mean	Highest	Lowest	Range
1 (99 statements)	66.7%	79.4	49.5	29.9
2 (97 statements)	69.9	80.7	55.6	25.1

^aRespondents' total actual degree of competence/
respondents' total possible degree of competence x 100.

Table 28

Comparison of Total Percentage Competence
for Two Predictions

	Degree of competence (N: 97 statements)			
	High	Medium	Low	Totals
"Same" (less than 5% change)	46	41	51	58
Increase of 5% or more	37	39	7	36
Decrease of 5% or more	14	17	39	3
Net gain (+) or loss (-)	+23	+22	-32	+33

round predictions (80.7 and 55.6 percent, respectively) exceeded the corresponding percentages for the first round (79.4 and 49.5 percent). The range of total competence percentages for the first predictions was 29.9 percentage points, whereas for second predictions, the range decreased to 25.1.

Table 28 compares the total percentage competence, for two predictions, on the basis of five-percent-changes.

Using \pm five percent as the criterion for determining if an increase or decrease occurred from the first prediction to the second, it was found that 36 statements showed an increase in total percentage competence as opposed to three statements for which the total percentage competence decreased. This yeilds a net gain of over one-third (33/97) of the statements showing increases in the total percentage competence.

The other related information shows a general shift by respondents from the "low" competence category into either a "medium" or "high" competence category. The "low" competence category was abandoned by five or more percent of the respondents for 32 statements; responses in the "medium" and "high" categories, on the other hand, increased (by five or more percent" for 39 and 37 statements, respectively. The result was a net decrease in "low" competence for 32 statements, and net increases for 22 and 23 statements in "medium" and "high" competence, respectively.

The overall average degree of competence per respondent, per statement, for the first prediction was 1.6; for the second prediction, it rose slightly to 1.7. Thus, the average respondent in both rounds of predictions assessed his competence as being somewhere between "low" and "medium" in making a judgment about a statement's "probable date of occurrence."

Individual prediction patterns. The final pattern of prediction, involving changes from the first to the second prediction, is concerned with individual prediction patterns.

Table 29 presents the highest frequency of responses made by individual respondents for each "probable date of occurrence" category.

One surprising finding with regards to the prediction behavior of individuals is that the highest number of responses made by individuals accounts for one-third or more of that particular person's predictions in ten of the fourteen cells under "probable date of occurrence." Another finding with reference to Table 29 is that seven respondents exhibited differences of greater than \pm ten responses from the first to the second prediction.

A further comparison was drawn up between each respondent's category with the highest frequency of responses for (1) the first prediction, and (2) the second prediction. For nearly half of the respondents (19/40), the two categories coincided. The categories with the highest frequency in the first and second rounds of predictions did not match for the other 21 respondents.

One interesting case relates to an individual's perceived degree of competence. This particular respondent assessed his degree of competence, for the first prediction, as "high" in making predictions for every statement. For the second round of predictions, he checked "high" competence again for an incredible ninety-six statements; he omitted the ninety-seventh response.

Thus far in the discussion on patterns of prediction, both the first and second rounds of predictions were involved in the analysis. The next topic centres on the second round only and examines the predictions of two sub-groups of the population.

Table 29
Frequency Distribution of the Highest Number
of Responses Made by Individuals

Prediction number	No response	Probable date of occurrence						Perpetual problem
		1970-71	1972-75	1976-80	1981-90	Later	Never	
1	*35 (12)	34 (32)	47 (42)	44 (26)	36 (17)	25 (8)	*34 (36)	29 (29)
2	*12 (35)	33 (14)	52 (29)	38 (27)	21 (20)	35 (24)	*36 (34)	30 (28)

*Same individual in first and second predictions.
()Frequency for the respondent's complementary prediction.

Prediction Patterns Based on Age and Education

Since the data under analysis were not interval in nature, the chi-square non-parametric test was selected to test for significant differences. In reference to the chi-square test, Siegel (1956:175) writes:

When frequencies in discreet categories (either nominal or ordinal) constitute the data of research, the χ^2 test may be used to determine the significance of the differences among k independent groups.

The 0.001 level of significance was used for this study; that is, if the probability of the chi-square test result exceeded 0.001, the differences in the frequency of responses were deemed to be significant.

Two variables were chosen for this analysis: age and highest academic qualification. All of the data were taken from the second (and final) round of predictions.

Age. For the first variable, age, the population was divided into four age groups: "20-40, 41-50, 51-60, and 61+" (see Table 30). The numbers of responses in each "probable date of occurrence" category were added for each age group. In Table 30, the responses in each cell have been converted to percentages for ease of comparison. However, the numbers in parenthesis refer to the total number of second prediction responses for 97¹ statements.

Since the obtained chi-square (χ^2) value, 197.6, exceeded the critical value (at the 0.001 level of significance) of 42.3, the differences in the frequencies of responses were deemed to be significant.

Close inspection of Table 30 reveals that there was considerable variation among age sub-groups in their patterns of prediction.

¹Of the initial 100 statements, one defective statement was dropped after the first round of predictions while, for two other statements, only the first prediction was solicited (after which there was "consensus").

Table 30

Percentage Frequencies of Responses Comparing Age Category
with Probable Date of Occurrence Category

Probable date of occurrence	Age category				Totals (%)
	20-40	41-50	51-60	61+	
1970-71	10.47	11.58	6.31	15.57	10.18
1972-75	32.21	26.37	20.45	24.54	26.27
1976-80	19.08	21.22	23.00	18.21	20.78
1981-90	7.99	8.76	10.65	8.18	9.00
Later	6.65	10.93	17.62	4.22	10.87
Never	17.75	17.20	12.16	19.26	16.16
Perpetual problem	5.86	3.94	9.80	10.03	6.74
Totals (%)	29.57	32.64	27.84	9.95	100.00
(Actual)	(1127)	(1244)	(1061)	(379)	(3811)

Chi-square = 197.6 df = 18 p < 0.001

The first variation to be examined has to do with the "later" category. The population as a whole said "later" 10.87 percent of the time. However, a relatively high proportion of the respondents in the "51-60" age category (17.62 percent) checked "later" as a response while people in the first age category ("20-40" years of age) and the fourth age category ("61+" years of age) tended to make fewer "later" predictions (6.65 and 4.22 percent, respectively). Hence, younger people and the oldest respondents tended to avoid the "later" category in making predictions while those respondents of "51-60" years of age tended to use it more often.

Another age difference was related to the "perpetual problem" category. While the population as a whole checked "perpetual problem" only 6.74 percent of the time, the people in the age groups of "51-60" years of age and "61+" years of age chose that category 9.80 and 10.03 percent of the time, respectively. On the other hand, the two age categories spanning 20-50 years of age ("20-40" and "41-50") showed 5.86 and 3.94 percent of their responses in the "perpetual problem" category. In general, younger respondents tended to favor categories other than "perpetual problem" while those over 50 years of age made more extensive use of it.

A third difference in prediction patterns based on age sub-groups is found in the "61+" age category. The population as whole said "1970-71" 10.18 percent of the time while the oldest respondents picked that time period 15.57 percent of the time. The respondents nearest in age to the above sub-group are the people in the "51-60" age group; however, they differed remarkably in their prediction behavior for the "1970-71" time period. Whereas the oldest respondents checked "1970-71" 15.57 percent

of the time, the respondents aged "51-60" responded only 6.31 percent of the time for the same category. Generally, the oldest respondents tended to predict comparatively often in the "now" category ("1970-71"); in contrast, the second oldest sub-group picked the "1970-71" category the least often of all.

Turning to differences within age categories, an unexpected finding emerges: the prediction behavior of the youngest and oldest respondents tended to be the same. The youngest sub-group tended to avoid predicting "1981-90" or "later" (7.99 and 6.65 percent, respectively). The same was true for the oldest respondents; 8.18 percent said "1981-90" and 4.22 percent said "later." In fact, these two groups (youngest and oldest respondents) showed small variations in their response patterns for all categories excepting "perpetual problem." The youngest participants selected "perpetual problem" responses 5.86 percent of the time as compared to a frequency of nearly double (10.03 percent) for the oldest respondents.

Highest academic qualification. Highest academic qualification is the second variable to be examined with reference to prediction patterns of sub-groups (see Table 31). The population was divided into three mutually exclusive groups: "Bachelor's degree or lower educational qualification," "graduate degree other than Ph D," and "Ph D."

The obtained chi-square (χ^2) value, 73.7, was higher than the critical value (at the 0.001 level of significance) of 32.9, hence the differences in the frequencies of responses were deemed to be significant.

As shown in Table 31, almost half (47.39 percent) of the responses were made by respondents holding Ph D degrees. The other educational sub-groups, "Bachelor's degree or lower educational qualification," and "graduate degree other than Ph D," made 30.04 and 22.57 percent of the total responses, respectively.

Table 31

Percentage Frequencies of Responses Comparing
Highest Academic Qualification with
Probable Date of Occurrence

Probable date of occurrence	Bachelor's degree or lower educational qualification	Graduate degree other than Ph D	Ph D	Totals (%)
1970-71	5.12	12.84	10.91	10.18
1972-75	26.28	25.85	26.52	26.27
1976-80	19.88	19.74	21.87	20.78
1981-90	10.58	7.34	9.30	9.00
Later	10.81	14.24	8.75	10.87
Never	19.19	13.28	16.56	16.16
Perpetual problem	8.14	6.73	6.09	6.74
Totals (%)	22.57	30.04	47.39	100.00
(Actual)	(860)	(1145)	(1806)	(3811)

Chi-square = 73.7

df = 12

p < 0.001

The major variation shown in Table 31 is in the "1970-71" time period. Whereas the percentage of people with a "Bachelor's degree or lower educational qualification" chose that category 5.12 percent of the time, the population as a whole said "1970-71" 10.18 percent of the time. Therefore, people with less formal education tended to avoid predicting for the earliest time period, that is, "1970-71."

Another less pronounced difference occurred in connection with the "later" category. The population as a whole picked "later" as a prediction 10.81 percent of the time. People with a "graduate degree other than Ph D," said "later" with a frequency of 14.24 percent while those respondents with a Ph D degree chose the "later" category only 8.75 percent of the time. This finding suggests that respondents having a Ph D degree tended to shun "later" predictions while those people with a "graduate degree other than Ph D" made greater use of that "probable date of occurrence" category.

This terminates the discussion on findings. A summary of both the predictions and the patterns of prediction appears at the beginning of Chapter 5.

Chapter 5

SUMMARY, ASSESSMENT OF THE METHODOLOGY, CONCLUSIONS, SPECULATIONS, AND RECOMMENDATIONS

SUMMARY OF THE STUDY

Introduction

No claims of reliability are made for the predictions obtained in this study. However, insofar as they reflect reasoned opinions, expressed with reference to opinions of fellow-respondents, such predictions should provide a sounder basis for long-range decision-making than do purely unarticulated, intuitive judgments.

At the heart of present future studies, such as the one at hand, is the effort to sketch "alternative futures" (the likely results of different policy choices). Decision-makers of the future will succeed in as much as they plan (long-range) in a way that accomodates a large range of events; in other words, flexibility. The flexibility is needed both for the ends desired and for the allocation of resources.

This study may provide some insight for educators (involved in long-range planning) by looking at some "early warning" signs, and by possibly encouraging the necessary development of coordination of post-secondary Alberta education.

The discussion now turns to summaries of (1) the problem, (2) the population, (3) the method, and (4) the findings of the study.

The Problem

This study attempted to identify problems of educational concern which may develop in post-secondary education during the next few decades. More specifically, the problem involved an attempt to:

1. predict problems, issues, or developments which may affect the coordination among Alberta post-secondary educational institutions
2. determine the times at which these problems or developments in coordination will either occur or will reach such proportions that they will be clearly recognizable by a majority of the people affected by them.

The Population

Initially, a panel of judges was selected for the purpose of nominating a population of experts for the study. Following the nominations, prospective respondents were contacted by telephone, and then by a confirmation letter, to obtain their commitment. Fifty-two experts agreed to participate in the study.

The Method

A modified form of what is known as the Delphi technique was used as the method for collecting data in the study. The technique required that, first of all, a population be identified to act as respondents. This population was asked to react to a series of four instruments.

The four instruments, labelled Parts 1-4 (see Appendix B), were mailed to respondents, over a four-month period. The first phase (Part 1) in data collection requested respondents to identify problems which they thought were likely to develop in the future and which they thought would affect the coordination of Alberta post-secondary

education. After the statements received from Part 1 had been consolidated, they were submitted in Part 2 to the respondents who were asked for (a) predicted dates of occurrence, along with (b) a self-appraisal by themselves of their degree of competence in making a prediction about the statement. The third instrument asked respondents to state their reasons for making certain of their first predictions. The final stage of the study consisted of the second and final predictions. More specifically, the Part 4 instrument requested that respondents reconsider and possibly revise, in light of the reasons (Part 3), their first predictions. They were also asked to check categories for: age, tenure in present position, and highest academic qualification.

Due to the nature of the modified Delphi technique, data had to be analyzed following the submission of each of the four instruments. The rate of return for the instruments ranged from 90.4 percent for the first to 76.9 percent for the fourth instrument.

The Findings

The summary of the major findings includes (1) the final predictions, and (2) the patterns of prediction. The two sections will be dealt with in that order.

The predictions are presented in classifications according to time period. The classifications ("1970-71, 1972-75, 1976-80, 1981-90, later, never") are based on (1) the statements (predicted events or developments), and (2) the corresponding majority-opinions (that is, the time periods by which 50 percent of the respondents--"perpetual problem" responses excluded--have made their prediction). In other

words, each majority-opinion time period contains the "break-even" date, that is, the date for which there is an equal expectation that the event in question will materialize before or after it.

The numbering within time periods is for the sake of convenient reading; these numbers do not necessarily refer to a chronological sequence.

1970-71. None of the statements in the study had a majority-opinion in this, the earliest category.

1972-75. According to the majority-opinion of respondents, the following developments or events are likely to occur in the time period of "1972-75":

1. general reduction in the number of required courses in particular programs
2. appeals by public colleges for private funds
3. establishment of a national association of community-junior colleges
4. general recognition of all credits of two years' transfer program in community colleges by Alberta universities
5. ninety percent of those who start grade one complete high school
6. abandonment of High School Diploma, grade 12 departmental examinations, and introduction of standardized entrance examinations for universities
7. multiple points of entry (for example, age, grade, time, etc.) from secondary education to post-secondary education
8. fifty percent of all educational planning becoming programmed planning to cope with rapid changes

9. cost-benefit studies to set priorities in post-secondary education
10. standardized components (modular) for construction of school facilities
11. Boards of Governors for the three Agricultural and Vocational Colleges
12. Boards of Governors for the two Institutes of Technology
13. open-door policy for colleges
14. emergence of an Alberta Commission for Higher Education to coordinate all Alberta post-secondary education
15. formation of strong association of post-secondary instructors
16. community pressure to have the college year lengthened.

1976-80. Moving to a time further into the future, it was found that predictions for the following statements had majority-opinions in the "1976-80" category:

1. provincial master plan of post-secondary and adult education
2. fifty percent of all long-range educational planning based on the priority of societal objectives
3. multi-campus course offerings
4. Agricultural and Vocational Colleges become community colleges
5. year-round scheduling to counteract capital costs
6. seventy percent of high school graduates continuing education for at least one more year
7. fifty percent of the instructional staff in institutions made up of para-professionals and employed students
8. Institutes of Technology become community colleges
9. adoption of extended school day

10. post-secondary education, adult education, continuing education, further education, etc. fused into a pattern of lifelong education

11. fourteen years free public education

12. fifty percent of university freshmen enrolled in community colleges.

1981-90. The "break-even" point (equal expectation that the event in question will materialize before or after it) for the following statements was contained in the category of "1981-90":

1. regional boards (for example, metro Calgary, Edmonton) established with responsibility for the total educational program within a region

2. students told which university, college or institute to attend

3. free post-secondary education (no tuition fees).

Later. Statements listed below showed majority-opinions in the category of "later." However, since relatively large numbers of participants said "never" for these statements, those proportions are noted at the end of each statement.

1. Overall coordination, by a strong central government, of a general education program at the post-secondary level to educate the public to combat social problems ("never": 20.5 percent)

2. University of Alberta and University of Calgary primarily graduate institutions ("never": 27.5 percent)

3. compulsory work experience for teachers at regular time intervals ("never": 28.2 percent)

4. annual salary for university students ("never": 32.5 percent)

5. most educational projects contracted to private firms specializing in designing educational programs ("never": 46.2 percent)

6. compulsory teaching certificates for instructors in post-secondary institutions ("never": 47.5 percent).

Never. The six statements following will "never" occur, according to at least 50 percent of the respondents:

1. development of "city-states" to replace provincial or federal governments

2. abandonment, by post-secondary education, of physical plant, in favor of electronic gadgetry

3. education becoming a national responsibility as opposed to provincial responsibility

4. disappearance of Boards of Governors at the post-secondary level

5. "uniform" curriculum among universities and colleges across Canada

6. full financial support of post-secondary educational institutions by students.

In general, the second-round predictions (for all 97 statements), had majority-opinions in two main categories: "1972-75" (33.0 percent) and "1976-80" (39.2 percent). The remaining 27.8 percent of the statements showed majority-opinion predictions spread over the three latest time periods.

The second section in the summary of findings is concerned with the patterns of prediction; that is, the way in which respondents predicted rather than what they predicted.

The first finding in this section was that respondents tended to predict earlier "probable date s of occurrence" on the second round of predictions than they had on the first round. One consequence of this shift was that there was a tendency for majority-opinions to move into the "1972-75" time period from later periods. The category recording the largest decrease in both the number of response and majority-opinions was the "1981-90" time period.

Another finding in relation to the first and second rounds of prediction was that respondents perceived themselves as more competent in making predictions in the second round.

Comparing age with second prediction revealed the following patterns of prediction: respondents aged "51-60" tended to predict "later" comparatively more often than the other sub-groups; participants of 50 or more years of age tended to see more statements as "perpetual problem[s]" than their younger counterparts; the oldest group ("61+" years of age) tended to predict "1970-71" more often than the other age sub-groups; the last finding with respect to age and prediction was a surprising similarity in the prediction patterns of two groups: the youngest ("20-40" years of age) and the oldest ("61+" years of age).

As far as education and prediction are concerned, the people with a "Bachelor's degree or lower educational qualification" tended to make fewer "1970-71" predictions than the two other sub-groups. Also, the people with "a graduate degree other than Ph D" tended to make relatively more frequent "later" predictions than participants holding a Ph D degree.

The next section to be examined in this chapter is the assessment of the methodology.

ASSESSMENT OF THE METHODOLOGY

The modified Delphi technique, as used in this study, is open to some criticism (as is any method investigating the future). The first criticism (ambiguous statements) was brought to the attention of the researcher through comments by respondents while additional criticisms were perceived by the researcher himself.

Ambiguous Statements

The first criticism of the technique is that a number of the statements were worded ambiguously. This could have the effect that two respondents would form disparate interpretations of the same statement. Short of using legal terminology (which would be very cumbersome and perhaps repulsive for respondents), exact precision of meaning is virtually unattainable. One way of minimizing this ambiguity would be to add another mailing between the initial submission of perceived problems or developments (combined, by the researcher, into statements) and the first prediction. Respondents would then be given an opportunity to react to the statements, as consolidated by the researcher, before indicating the "probable date of occurrence" of each event or development. The reaction, by the respondents, would likely improve the phrasing, content, and intent of the statements. An incidental reward of the extra mailing might be that the statements themselves could provide cues to the participants which could, in turn, prompt them to search in their minds for unthought-of combinations of ideas.

Degree of Competence

The self-assessed degree of competence could also be improved upon. For the second prediction, a majority of the respondents simply

checked "medium" competence for over 87 percent of the statements; this reveals a minimum amount of information about their competence. The researcher acknowledges that a self-appraisal for every prediction is time-consuming and difficult. However, it would appear that if the feature of self-assessed competence is to be used, an even-numbered scale with competence ratings would be an improvement over the odd-numbered scale. This would force respondents to commit themselves, one way or the other, regarding their preceived competence.

Dalkey (1969:547-549) suggests that the feature of self-assessed competence should be used in a Delphi study. His experiments showed that self-evaluation by the respondents appeared to be measuring something about the statements fairly well. He found that group reliability for average self-competence in individual questions was high. This suggests that the accuracy of the majority-opinion concerning a particular statement varies with the total perceived degree of competence.

Lapse of Time

A third criticism is that the collection of data was spread over a (lengthy) period of four months. This may have caused some shifts of opinion owing to the mere passage of time along with its concomittant change in the state of knowledge generally. The length of time may also have been responsible for some of the drop-outs of the study. Perhaps better advance organization would have helped to circumvent difficulties encountered because of lapse of time.

Developments Versus Events

A further criticism is that some of the statements submitted to respondents (for predictions) contained ideas which were matters of gradual development. That is, developments do not occur at a discreet point in

time, but rather, they simply grow. This is one reason why respondents, when making predictions, were asked the following question: ". . . when . . . will the problem or development either happen or reach such proportions that it will be clearly recognized by a majority of people affected by it?" Another feature incorporated in the study to counteract the criticism of "developments versus events." was the prediction category of "perpetual problem." That category provided an opportunity for respondents to make a "prediction" covering the entire time continuum of "1970-71" to "never."

Scope

The total number of statements reached 100 at one point in the study. The researcher felt that the high number of statements tended to become unwieldy for respondents. They were required to make predictions for all of the statements and, in addition, to indicate their perceived degree of competence in so doing. The researcher was very conscious of the time demanded of respondents, especially for Parts 2 and 4, when the first and second predictions, respectively, were solicited. One alternative for overcoming the problem of great demand on respondents' time would be to choose a narrow area of inquiry. Another way would be to eliminate (after the initial submission) those problems or developments which seem to be irrelevant to the study. The difficulty with the second alternative lies in the choice as to which developments are related to the study and which are not.

Effect on the Participants

An instance of serendipity was that a few respondents felt that participation in this type of project provides a reciprocal benefit. They felt that the statements were thought-provoking and that some reward

was found for their labor through the mental stimulation to which the experiment exposed them. One respondent wrote "may I assure you that this has been a most interesting exercise. I do appreciate the opportunity of participating." Conventional forced-answer questionnaires do not usually have this reciprocal feature.

In general, none of the criticisms above discredit the method in principle. For the purpose of this study, the methodology used was appropriate and more than adequate.

CONCLUSIONS

The ten generalizations which appear in the conclusions are based upon the opinions of the population of this study and on the review of related literature in Chapter 2. The conclusions relate to "future issues in coordinating Alberta post-secondary education."

1. Bulk of issues to occur within ten years. In the second and final prediction, 72.2 percent of the majority-opinions for statements occurred in the time periods of "1972-75" and "1976-80."

2. Boards of Governors here to stay. Majorities of respondents predicted that both the institutes of technology and the agricultural and vocational colleges would have Boards of Governors by 1975. Also, when asked to predict when Boards of Governors would disappear, a majority of respondents replied "never."

3. Education to remain provincial responsibility. A majority of the participants felt that education would "Never" become a national responsibility. The respondents did concede that there may be overall coordination, by a strong central government, of a general education program at the post-secondary level to educate the public to combat social problems; however, if this did occur, it would be "later" than 1990.

4. Trend to diversity. The agricultural and vocational colleges will become community colleges by 1980, according to a majority of respondents. This would make them more general and comprehensive. Also, colleges will increasingly want more autonomy in the future "in fulfilling their objectives." Additional supporting data for the diversifying trend is provided by majority views that: by 1975, there will be a preoccupation of providing "a broad enough academic and technical background so that students' skills are not obsolete in five years;" there will be greater overlap of post-secondary educational institutions' purposes to cater to the variety of students' needs, by 1980; and universities will "never" have a "uniform" curriculum.

5. Need for formal link between two commissions. An Alberta Commission for Higher Education is expected to emerge within the decade, according to a majority of respondents (50 percent say by 1975 while 77.5 percent say by 1980). Also, there is a majority view to the effect that post-secondary education, adult and continuing education will become fused into a pattern of lifelong education by 1980. These two factors are expected to contribute to bridging the relationship between the Alberta Colleges Commission and the Alberta Universities Commission.

6. Future coordination characterized by greater flexibility. There were majority-opinions in the "1972-75" prediction category for the following developments: open-door policy for admission to colleges, more educational entry points (registering during the year), long-range plans will become more programmed (adaptive to changes and "alternative futures"), and general reduction in the number of compulsory courses for particular programs. By 1980, say a majority of respondents, there will be "year-round scheduling to counteract capital costs." All of these developments will result in greater flexibility in coordination.

7. Alberta post-secondary educational enrolments to rapidly increase. By 1975, at least 90 percent of those who will have begun grade one, twelve years earlier, will be in grade twelve, according to a majority of respondents. Another majority view was that, by 1980, 70 percent of the high school graduates will continue their education for at least one more year. Enrolment projections indicate that, for the five-year period of 1969-74, rises of 100 and 137 percent are expected for the Alberta universities and Alberta colleges systems, respectively.

8. Increasing concern for accountability in education. Cost-benefit studies will set priorities in post-secondary education by 1975, say a majority of respondents; by that same time, there will be "much greater stress placed on educational objectives with institutions held accountable for achieving them (emphasis on greater productivity)." There will also be a concern for more effective utilization of staff and facilities: by 1975, there will be community pressure to have the college year lengthened and, by 1980, educational institutions will adopt an extended school day. These trends and developments point to greater accountability for what is done in education.

9. Participation in decision-making. There will be a "climate of cooperation, participation and interaction in the internal government of individual institutions" by 1975, in the opinion of a majority of respondents.

10. Post-secondary education less expensive for future students. According to majority-opinions of respondents, there will be 14 years of free public education by the end of this decade; by 1990, tuition fees will have been abolished; and "later" university students will actually be paid to study.

The evidence of the study was brought in to support major conclusions of the study. The discussion now turns to some speculations.

SPECULATIONS

This section adds an extra dimension to the study and hopefully will stimulate readers to probe the future for themselves.

The three ideas contained in this section are not based directly on the findings of the study. For the most part, the assertions which follow arose as a result of the writer being exposed to and concerned with attempts to foretell the future. This took place over an extended period of time (January-August, 1970) and undoubtedly influenced the writer's personal views on the course of future events. No claims are made with respect to the reliability of the speculations.

Proliferation of Colleges

At present, there are five¹ public colleges which come under the direct jurisdiction of the Alberta Colleges Commission. The colleges and the dates of their establishment as public colleges are as follows: Grande Prairie, 1966; Lethbridge, 1957; Medicine Hat, 1965; Mount Royal (Calgary), 1966; and Red Deer, 1964. Hence, out of five Alberta public colleges, four have been established as such since 1964.

By 1980, the number of Alberta public colleges will triple. Camrose Lutheran College will have changed its status from a private to a public college while the two institutes of technology and the three agricultural and vocational colleges will no longer be under the direct control of the Departments of Education and Agriculture, respectively. The Alberta Colleges Commission will assume control over these six institutions. As for the remaining four (community) colleges, which do not yet exist, they will be located in Hinton, St. Paul, Fort McMurray, and Yellowknife (in the Northwest Territories).

¹Another college is being set up. It will be located in Edmonton.

The decisions to establish colleges in Hinton, St. Paul, and Fort McMurray will arise out of a government policy statement that every region in the province of Alberta be served by at least one public college. The Alberta Colleges Commission will be asked, by the provincial government, to separate the province into regions for the above purpose. If the population of any region is less than 50,000, at least one community college will be established. If the population exceeds 50,000 people in any region, a four-year college can be established in that region's largest city. Hence, the regions in which Hinton, St. Paul, and Fort McMurray are located will qualify for community colleges. Red Deer will qualify for a four-year college in addition to its present college.

With reference to Yellowknife Community College, it will be entirely federally-financed but will be coordinated and articulated with the Alberta colleges system for certain programmes.

The Alberta Colleges Commission will strive to follow enrolment guidelines of 1,500 and 5,000 students for community colleges and four-year colleges, respectively. These policy decisions will help equalize educational opportunity between rural and urban Albertans.

Open University

Alberta's fifth university (present four include the universities of Alberta, Calgary, Lethbridge, and the yet-to-be-built Athabasca) could very well be a university-of-the-air. The idea would be to serve people who otherwise would not have the chance to get the education. It would be a truly provincial university because it would reach any area of the province, isolated or not.

Alberta's open university would make use of correspondence courses, radio, cassettes with tape materials, teaching machines, programmed learning, microfilms (inexpensive portable capsule film viewers would be available), video tapes (played on ordinary TV sets having a special converting attachment), and other auto-instructional teaching devices. The open university would function year-round and would be operated by a small core of highly skilled administrators. The headquarters of the university would reflect the university's approach of concern for the individual: the orientation would be self-study and, since form follows function, the "classrooms" would be in the form of soundproof cubicles for individuals.

A typical client of the university would be taking the equivalent of one or two courses per year. He would have a full-time job and live in a relatively unpopulated part of the province. He would feel a need to develop himself to his fullest potential.

Quarter System

In the time period of 1976-80, Alberta educational institutions will increasingly shift to the quarter system. Under this system, the calendar year would be divided into four parts with the Christmas recess as the break between two of the quarters. It would provide for the entry of new students in January, April, July, and October. One Alberta post-secondary educational institution, Southern Alberta Institute of Technology, introduced the quarter system for the academic term of 1969-70.

The quarter system will arise as a final step in the progress from rigidity to flexibility in academic-year scheduling. The undivided academic year is at the rigidity end of the rigidity-flexibility

continuum. The semester system adds another entry/exit point (at the end of the first semester) in the academic year, hence it is more flexible than the undivided year. However, under the quarter system, four entry/exit points exist. In a word, greater flexibility will occur with the advent of the quarter system.

For the quarter system to be successful, a systems approach will be needed--that is, the coordinating agencies for all Alberta education will be involved.

RECOMMENDATIONS

The purpose of this section of Chapter 5 is to outline some recommendations which have arisen out of the study.

It is recommended that:

1. projects similar to this one be continued in the future in the Department of Educational Administration at the University of Alberta
2. a flexible and comprehensive master plan be established for all Alberta post-secondary education and adult education
3. a body be established to provide a formal channel of communication between the Alberta Colleges Commission and the Alberta Universities Commission
4. a planning body such as the Alberta Commission on Educational Planning be established for continuous operation
5. the three agricultural and vocational colleges become community colleges and have Boards of Governors, and
6. the Alberta Colleges Commission assume responsibility in connection with the coordination of the three agricultural and vocational colleges with other provincial post-secondary educational institutions.

CONCLUDING REMARKS

A major issue for the future is coordination among the three distinguishable types of Alberta post-secondary education: university, college, and adult education. Coordination and articulation of the various post-secondary systems in the province will be necessary in order to achieve orderly growth, avoid unnecessary duplication, and provide balanced services.

This study may provide foresight for long-range planners as they attempt to develop some measure of control (for example, general guidelines) over the relationships among Alberta post-secondary educational institutions.

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APPENDICES

APPENDIX A

Telephone Message
Letter Confirming Telephone Message
Confirmation Reply Form

DEPARTMENT OF EDUCATIONAL ADMINISTRATION

THE UNIVERSITY OF ALBERTA

EDMONTON 7, ALBERTA

Telephone Message

My name is Richard Martin; I am enrolled in a Master's program in the Department of Educational Administration at the University of Alberta. I am contacting you to ask you to participate in a study of post-secondary education because you have been nominated as a knowledgeable in this area.

The study relates to Future Issues in Coordinating Alberta Post-Secondary Education. It is part of a project being directed by Dr. F.C. Thiemann, Associate Professor in the Department of Educational Administration. I will be using an elaborate modification of the Delphi method to determine the problems and issues arising in the next few decades in connection with the coordination of all post-secondary education in this province. This method has been successfully used in education as well as in other areas.

It would mean that you would be contacted by letter four times. Past experience indicates that the involvement requires about 1/2 hour each time. No incidental expenses will arise out of this.

The value of this study lies in the guidance which will be provided for coming to grips with future problems and issues in coordinating Alberta higher education. Will you participate in this study?

Please do not discuss this study with your colleagues--it must be an individual endeavor at this time.

Thank you for your cooperation; I look forward to working with you. I will forward a letter confirming our telephone conversation.

Note: Confirm the prospective respondent's address.

DEPARTMENT OF EDUCATIONAL ADMINISTRATION

THE UNIVERSITY OF ALBERTA

EDMONTON 7, ALBERTA

(date)

(inside address)

This letter will confirm our recent telephone conversation. My name is Richard Martin; I am enrolled in a Master's program in the Department of Educational Administration at the University of Alberta. I am contacting you to ask you to participate in a study of post-secondary education because you have been nominated as a knowledgeable in this area.

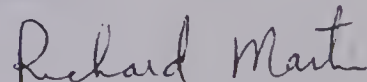
The study relates to Future Issues in Coordinating Alberta Post-Secondary Education. It is part of a project being directed by Dr. F.C. Thiemann, Associate Professor in the Department of Educational Administration. I will be using an elaborate modification of the Delphi method to determine the problems and issues in developing a plan for coordinating all post-secondary education in this province. This method has been successfully used in education as well as in other areas.

It would mean that you would be contacted by letter four times. Past experience indicates that the involvement requires about 1/2 hour each time. No incidental expenses will arise out of this.

The value of this study lies in the guidance which will be provided for coming to grips with future problems and issues in coordinating Alberta higher education. Will you participate in this study?

Please do not discuss this study with your colleagues--it must be an individual endeavor at this time. If there are any questions, please telephone 432-4911 (day) or 435-5298 (evening). You may contact me by letter as well. Thank you for your cooperation; I look forward to working with you.

Yours sincerely,



Richard Martin

rm
Enclosure

P.S. Could you return the enclosed reply, in the self-addressed envelope, indicating your willingness to participate in the study?

Date _____

Memo to: Mr. Richard Martin, B. Ed.
Department of Educational Administration
The University of Alberta
Edmonton 7, Alberta

Re: Post-Secondary Education Project

This memorandum acknowledges receipt of your letter concerning the above project and confirms my agreement to participate.

(Signature)

APPENDIX B

Modified Delphi Instruments (Parts 1-4)

DEPARTMENT OF EDUCATIONAL ADMINISTRATION

THE UNIVERSITY OF ALBERTA

EDMONTON 7, ALBERTA

Modified Delphi Investigation - Part 1Topic: Future Issues in Coordinating Alberta Post-Secondary EducationNumber of Respondents: 52Focus of Study: 1970-2000 (30 Years)Researcher: Richard MartinProject Supervisor: Dr. F.C. Thiemann
Associate Professor

Introduction

The future is made up of two kinds of events: the expected and the unexpected. A study such as this cannot hope to uncover the spectacular unanticipated breakthroughs, but must concentrate on narrowing down the dates and circumstances of occurrences which can be extrapolated from the present (and past). While this is a limitation, it is hoped that as a result of this study, the future (in the area of coordinating post-secondary education), will hold fewer surprises for all of us. By anticipating problems, we may be able to plan alternative strategies to deal with them before they reach unmanageable proportions.

We cannot remove the veil of uncertainty from the future; however, it is possible to make meaningful forecasts. The modified Delphi technique is an attempt to replace casual guessing with the controlled use of intuitive expertise, in order to benefit long-range planning. This method seeks to induce opinion convergence among a group of respondents through a sequence of opinionnaires interspersed with controlled feedback.

Part 1 of this study is concerned with identifying problems likely to develop during the next thirty years, which will affect coordination in Alberta post-secondary education. Post-secondary education, as used here, refers to the education offered by the three universities, the two institutes of technology, the five public colleges, the three agricultural and vocational colleges and a number of private colleges. It excludes any high school divisions of these institutions. The above definition refers to the present situation, this situation may change.

(2)

The Task

You are asked to list on the special sheet provided the major problems (societal, educational, governmental, etc.) which will affect coordination (articulation, control, cooperation, etc.) of Alberta post-secondary education. Please state the problems in the future tense; these problems may occur at any time during the next thirty years. The problems or issues may be either directly or indirectly related to coordination of Alberta post-secondary education. You are asked to speak from your own perspective which may include professional, institutional and personal experience.


Deadline

As you know, there are subsequent stages in this project, and in order that all problems received may be processed for the second stage, you are asked to return the enclosed sheet in the stamped addressed envelope provided by January 30, 1970. Please retain these introductory remarks for future reference.

All communications received are strictly confidential. Names are included on the return sheet for statistical and operational purposes only.

If you have any questions, please feel free to contact me at the Department of Educational Administration, University of Alberta, Edmonton; telephone 432-4911 or 435-5298 (residence).

Thank you for your cooperation.


Richard Martin

DEPARTMENT OF EDUCATIONAL ADMINISTRATION

UNIVERSITY OF ALBERTA

EDMONTON 7, ALBERTA

Modified Delphi Investigation - Part 1

Name:

Problems:

Thank you. Please return this sheet in the self-addressed envelope.

DEPARTMENT OF EDUCATIONAL ADMINISTRATION

THE UNIVERSITY OF ALBERTA

Future Issues in Coordinating Alberta Post-Secondary EducationModified Delphi Investigation - Part 2Introduction

The future problems and developments in coordinating Alberta post-secondary education as identified by respondents in Part 1 of this study have been classified into sets and are submitted here for your further consideration.

Some problems were contained within others, and where necessary the wording has been altered to form brief, comprehensive statements. Additional comments provided by respondents, though not included in this instrument, will prove valuable in later parts of the study.

The Task

In this part of the study response sheets are provided on which you are asked to make predictions and another judgment concerning each of the numbered statements (100 in all).

In each case your prediction should be made with reference to the following question:

On the basis of past and present trends when, in your opinion, will the problem or development either happen or reach such proportions that it will be clearly recognized by a majority of people affected by it?

Deadline

In order that replies may be processed for Part 3 of the study, please return the response sheets in the envelope provided by Friday, March 6, 1970. If you have any questions, please telephone 432-4911 (day) or 435-5298 (evenings). You may retain the statements for future reference.

Your cooperation is sincerely appreciated.

DEPARTMENT OF EDUCATIONAL ADMINISTRATION

THE UNIVERSITY OF ALBERTA

Future Issues in Coordinating Alberta Post-Secondary EducationModified Delphi Investigation - Part 2Response SectionGeneral Question

The general question to ask concerning each statement is:

On the basis of past and present trends when, in your opinion, will the problem or development either happen or reach such proportions that it will be clearly recognized by a majority of people affected by it?

Instructions for Completing Response Sheets

For each statement check the appropriate cells for:

- (a) the probable date of occurrence (choose only one of seven possible responses);
- (b) a self-appraisal of your degree of competence or self-confidence in making a prediction about the statement.

Name _____

[illegible]

[illegible]

DEPARTMENT OF EDUCATIONAL ADMINISTRATION

THE UNIVERSITY OF ALBERTA

Future Issues in Coordinating Alberta Post-Secondary EducationModified Delphi Investigation - Part 3Introduction

I wish to thank you for your time and effort spent on parts one and two of the study. This has already provided much valuable data on the difficult task of forecasting problems facing coordination of Alberta post-secondary education.

I realize that a study of this nature places a considerable demand on respondents, and this is another reason why your contribution is so greatly appreciated. Perhaps at this time you may find it reassuring to recall that after Part 3, there is only one more instrument remaining.

The purpose of the present mailing is to obtain additional information from respondents in order to provide further feedback in Part 4.

The Task

In this part of the study, response sheets are provided which indicate the prediction you made regarding certain statements from Part 2.

Copies of the statements from Part 2 are attached to this information sheet. You will recall that your prediction was originally made with reference to the following question:

On the basis of past and present trends when, in your opinion, will the problem or development either happen or reach such proportions that it will be clearly recognized by a majority of people affected by it?

The task in Part 3 is for you to give a brief reason for your prediction. Please do so in the space provided on the response sheet.

Deadline

In order that replies may be processed for Part 4 of the study, please return the response sheets in the envelope provided by April 1, 1970. If you have any questions, please telephone 432-4911 (day) or 435-5298 (evenings). You may retain the statements for future reference.

Modified Delphi Investigation

Statement number	Your prediction						Reason for prediction
	1970-71	1972-75	1976-80	1981-90	Later	Never	Perpetual problem

DEPARTMENT OF EDUCATIONAL ADMINISTRATION

UNIVERSITY OF ALBERTA

EDMONTON 7, ALBERTA

Modified Delphi Investigation - Part 4

FINAL STAGE

Introduction

The final stage in the modified Delphi study has now been reached. Once again I wish to thank you for your time and effort, which has contributed very significantly to the present development of the project.

Summary of the study to date:

Part 1 -- the identification of future problems in coordinating Alberta post-secondary education;

Part 2 -- predicted dates of occurrence along with degree of competence;

Part 3 -- reasons for particular predictions.

Part 4 provides you with the reasons given by respondents in Part 3. The reasons, together with the original statements, are enclosed. Those reasons entitled "Early" were given by respondents who made the earliest prediction for the particular statement. Those entitled "Late/Never" were given by respondents who predicted that the particular statement would occur either in the more distant future or "not ever." The original working of the reasons has been retained as much as possible.

The Task

Referring to the enclosed reasons, you are asked to reconsider and possibly revise your original predictions by completing the response section on each sheet.

As in Part 2, it is most important that predictions be made with reference to the following question:

On the basis of past and present trends when, in your opinion, will the problem or development either happen or reach such proportions that it will be clearly recognized by a majority of people affected by it?

(2)

Instructions for completing the response section. For each statement check the appropriate cell for:

- (a) the probable date of occurrence (one category only);
- (b) a self-appraisal of your degree of competence in making a prediction about the statement.

Deadline

AT THE CONCLUSION OF THE STUDY YOU WILL BE PROVIDED WITH A SUMMARY OF THE RESULTS OF PART 4 IN APPRECIATION OF YOUR PARTICIPATION.

In order that replies may be processed as quickly as possible, please return all of the enclosed sheets in the envelope provided by May 8, 1970. If you have any questions, please telephone 432-4911 (day) or 435-5298 (evening).

Your continuing cooperation is sincerely appreciated.

PERSONAL DATA

Your cooperation in providing the following items of personal data would be appreciated. All replies are confidential.

1. To which age category do you belong?

- a. 20-30 _____
- b. 31-40 _____
- c. 41-50 _____
- d. 51-60 _____
- e. 61+ _____

2. How long have you been in your present position?

- a. 0-1 complete years _____
- b. 2-3 complete years _____
- c. 4-5 complete years _____
- d. 6-9 complete years _____
- e. 10+ complete years _____

3. What is your highest academic qualification?

- a. Ph D _____
- b. Another Graduate Degree _____
- c. Bachelor's Degree _____
- d. Some Post-secondary _____
- e. Secondary _____

APPENDIX C

Reminder Letters

DEPARTMENT OF EDUCATIONAL ADMINISTRATION

THE UNIVERSITY OF ALBERTA

EDMONTON 7, ALBERTA

(date)

Dear _____:

Re: Modified Delphi Investigation

May I remind you that the current Delphi instrument is now due to be returned for processing.

Your contribution will be greatly appreciated and must be received as soon as possible so that the project can proceed on schedule.

If your response is already in the mail, please disregard this letter and accept my thanks for your cooperation.

DEPARTMENT OF EDUCATIONAL ADMINISTRATION

THE UNIVERSITY OF ALBERTA

EDMONTON 7, ALBERTA

(date)

Dear _____:

Re: Modified Delphi Investigation

May I remind you that Part 4, the final stage, of the modified Delphi investigation is now due to be returned for processing.

As explained earlier, you will be provided with a summary of the study as soon as possible after all Part 4 returns have been received.

I assure you that this final contribution from you will be greatly appreciated. If your response is already in the mail, please disregard this letter and accept my thanks for your cooperation.

APPENDIX D

Total Percentage Competence, Percentage Frequencies for
Probable Date of Occurrence, and Reasons for
Statements Concerned with Culture, Family,
Motivation, Population, and Values

Table 32

Total Percentage Competence, Percentage Frequencies for Probable Date of Occurrence, and Reasons for Statements Concerned with Culture

Statement	Reason for prediction		Prediction no.	Probable date of occurrence (%)						Total competence (%)	
	Early	Late/Never		1970-71	1972-75	1976-80	1981-90	Later	Never		Perpetual problem
Rapid international transportation (greater mobility of clientele) increasing language and cultural problems in post-secondary education "temporarily."	Radical groups can mobilize to "hot spots." Inquiries come from Philip-pines, Jamaica, Brazil, Africa even if only for entrance to Canada. Universities now international community.	Not a problem. "Temporarily" out of place. Very little relationship with administration of post-secondary education.	1 (N: 39)	0.0	15.4	25.6	*	10.3	23.1	5.1	53
			2 (N: 40)	17.5	17.5	15.0	10.0	15.0	22.5	2.5	61.7
Development of the cultural community of minority groups (mosaic) before integration (melting pot) with the rest of society of society is attempted.	Recognition, by educators, of Indian culture. Resistance to uniformity but fear of alienation; answer: minority group exhibiting differences from society.	Not a logical sequence or a necessary conclusion. Not a problem. Evolving aspect of system. Forces of integration strong, attachment to minority cultures sentimental and unrealistic.	1 (N: 38)	0.0	28.9	15.8	10.5	13.2	10.5	21.1	58.8
			2 (N: 40)	10.0	25.0	12.5	5.0	12.5	15.0	20.0	63.3

Table 33

Total Percentage Competence, Percentage Frequencies for Probable Date of Occurrence, and Reasons for Statements Concerned with Family

Statement	Reason for prediction		Prediction no.	Probable date of occurrence (%)						Total competence (%)		
	Early	Late/Never		1970-71	1972-75	1976-80	1981-90	Later	Never		Perpetual problem	
General change in family unit from complete permissiveness to controlled permissiveness.	Do not now have complete permissiveness! Pendulum reaction: unreasonable restrictiveness (past), to extreme permissiveness (recent past), to controlled permissiveness (present).	Never be consensus on degree of permissiveness. Do not feel there is "complete permissiveness" so change is not possible.	1 (N: 39)	10.3	*	30.8	12.8	10.3	2.6	12.8	20.5	66.7
			2 (N: 34)	11.8		20.6	*	14.7	0.0	11.8	17.6	23.5
Educating and supporting children of single mothers.	Social assistance provides this. Problem currently widespread; will quickly become serious. Also the children themselves present problems.	Problem will require that these children be taken care of to some degree; do not see Canadian society developing rapidly in this matter.	1 (N: 39)	17.9	*	28.2	25.6	5.1	5.1	0.0	17.9	64.1
			2 (N: 39)	17.9		20.5	*	30.8	10.3	7.7	0.0	12.8
50% increase in leisure time for non-professionals.	Employers and employees will go to shorter work week. Solution to current over-production and under-employment: present workers work less.	50% of what? Increasingly, non-professionals will participate in voluntary organizations and second jobs, not recreational leisure time pursuits.	1 (N: 41)	0.0		4.9	14.6	*	41.5	7.3	4.9	60.2
			2 (N: 38)	0.0		7.9	34.2	*	26.3	21.1	7.9	2.6

Table 33 (continued)

Statement	Reason for prediction		Predic- tion no.	Probable date of occurrence (%)						Total comple- tion (%)	
	Early	Late/Never		1970- 71	1972- 75	1976- 80	1981- 90	Later	Never		Perpetual problem
General decline of family as social unit; functions assumed by society.	Already happened. School assuming family roles: family life education, dress and personal habits, careers, counselling on personal problems.	Strength of nation depends on strength of family. Marriage and the home will always remain as the best approach to this area of life.	1 (N: 41)	9.8	4.9	14.6	* 9.8	14.6	34.1	12.2	67
	Reason for establishment of Vanier Institute.		2 (N: 39)	12.8	20.5	* 7.7	10.3	5.1	30.8	12.8	65.6
Adults forced to continue formal education on a part-time basis.	To be competitive. This is the situation today most for most adults.	Becoming widespread yet no need to demand such a development.	1 (N: 40)	7.5	2.5	20.0	* 25.0	10.0	20.0	15.0	65.8
		Our society will never <u>force</u> this.	2 (N: 39)	5.1	17.9	* 28.2	12.8	7.7	20.5	7.7	65.2

Table 34

Total Percentage Competence, Percentage Frequencies for Probable Date of Occurrence, and Reasons for Statements Concerned with Motivation

Statement	Reason for prediction		Prediction no.	Probable date of occurrence (%)					Total competence (%)
	Early	Late/Never		1970-71	1972-75	1976-80	1981-90	Later	
50% of students interrupt formal education in order to come back later when their interests are more clear cut or their motivation has increased.	Many doing this now (including drop-outs). Trends: emphasis on formal training, shortage of employment, educational upgrading to avoid vocational obsolescence.	Part-time jobs increasingly harder to obtain. With knowledge explosion, students not able to interrupt formal education. Idealistic. More and more people will return for Continuing Education.	1 (N: 42)	0.0	16.7	28.6	* 19.0	14.3	69.3
			2 (N: 40)	0.0	17.5	22.5	* 7.5	17.5	69.2
Much greater stress on liberal arts and humanistic-type programs as more of our society becomes affluent (consummatory courses rather than utilitarian in the economic sense).	Trend here now. Will occur in cycles. Growing in popularity in Continuing Education--desired by a great number of young (and older) people.	Humanistic and liberal arts programs have been overstressed for centuries. It is impossible for them to be stressed much more.	1 (N: 42)	7.1	21.4	* 28.6	16.7	14.3	71.1
			2 (N: 40)	15.0	* 42.5	10.0	12.5	0.0	73.3
Emergence of voluntary organizations whereby an individual commits himself to a specific goal and then undertakes to make himself competent to achieve that goal.	Here now, nature of organizations involved: professional, social, artistic, social welfare, etc. Movements, not organizations, have arisen stressing "doing one's own thing."	Not with the students today! We are headed for greater rather than lesser institutionalization.	1 (N: 35)	2.9	2.9	17.1	* 20.0	20.0	49.7
			2 (N: 38)	13.2	15.8	* 18.4	7.9	21.1	60.2

Table 34 (continued)

Statement	Reason for prediction		Predic- tion no. ,	Probable date of occurrence (%)						Total compe- tence (%)	
	Early	Late/Never		1970- 71	1972- 75	1976- 80	1981- 90	Later	Never		Perpetual problem
Working for a living no longer main motivation.	With us now; and becoming increasingly apparent. Motivation is now the need to understand "man" and our total environment.	Hypothetical problem. Motivation for what? Occupational preparation strong purpose for foreseeable future. Continued motivation by satisfaction coming from productive effort.	1 (N: 42)	2.4	7.1	9.5	16.7	* 40.5	19.0	4.8	61.9
			2 (N: 40)	5.0	10.0	15.0	15.0	* 37.5	12.5	5.0	62.5

Table 35

Total Percentage Competence, Percentage Frequencies for Probable Date of Occurrence, and Reasons for Statements Concerned with Population

Statement	Reason for prediction		Prediction no.	Probable date of occurrence (%)						Total competence (%)	
	Early	Late/Never		1970-71	1972-75	1976-80	1981-90	Later	Never		Perpetual problem
Alberta's population: 3 million, (that is, double present population).	No reasons requested because of virtual consensus on Part 2 (first prediction).		1 (N: 42)	0.0	0.0	0.0	* 61.9	38.1	0.0	0.0	65.1
2% of Alberta's population rural, (that is, non-city).	No reasons submitted.	Over 2% will reject urban living. Rich resources of Alberta generally distributed and productive hence rural-urban swing soon to level.	1 (N: 41)	0.0	0.0	0.0	19.5	* 43.9	36.6	0.0	61.0
			2 (N: 39)	0.0	2.6	0.0	12.8	* 38.5	46.2	0.0	61.0
Concentration of population in satellite urban centres (corresponding decline of population in central city areas).	Process is already underway.	Trend to make downtown areas more attractive. No problem if shift occurs - problem if it does not. "Concentration" key word; smaller outlying cities will develop.	1 (N: 41)	0.0	2.4	14.6	31.7	* 41.5	7.3	2.4	50.2
			2 (N: 40)	7.5	12.5	25.0	* 27.5	20.0	2.5	5.0	62.3

Table 36

Total Percentage Competence, Percentage Frequencies for Probable Date of Occurrence, and Reasons for Statements Concerned with Values

Statement	Reason for prediction		Prediction no.	Probable date of occurrence (%)						Total competence (%)		
	Early	Late/Never		1970-71	1972-75	1976-80	1981-90	Later	Never		Perpetual problem	
General acceptance by institutions and the public of the concept of Continuing Education.	Already been accepted. Long established.	Acceptance ascending; 10 to 20 years before being "clearly recognized by a majority of people affected by it." Delayed until provision is made, for example, learning centres.	1 (N: 42)	14.3	33.3	*	33.3	16.7	0.0	0.0	2.4	77.0
			2 (N: 40)	37.5	*	30.0	20.0	10.0	2.5	0.0	0.0	78.7
New criteria to evaluate social and moral concepts.	Part of new revolution. Hear and read of new criteria daily; whether or not they are valid or adopted is another matter.	The "new" criteria are re-statements of the "old," for example, love, dignity of man. Christianity will continue to prevail.	1 (N: 40)	5.0	15.0	*	27.5	20.0	5.0	5.0	22.5	66.7
			2 (N: 39)	17.9	17.9	*	20.5	10.3	2.6	5.1	25.6	75.2
Change in emphasis from quantity to quality of life.	Part of new revolution. Almost everyone acknowledges this point; it can be labelled "quality of environment."	By 1980, more leisure and better education. Still a materialistic society. World's pressing needs keep emphasis on production.	1 (N: 42)	4.8	16.7	*	28.6	31.0	2.4	0.0	16.7	72.2
			2 (N: 40)	12.5	30.0	*	25.0	20.0	2.5	0.0	10.0	70.0
Behavior norms which are this-worldly, secular, humanistic, pragmatic, hedonistic, existentialist; rebelling against paternalism.	Present values. A comparative educational tour to Iron Curtain countries served to support the thesis that our education is as secular, pragmatic, etc. as theirs.	Mass acceptance long way off. Eventual rebellion against socialistic trend--people want to stand on own feet. Voters have already rejected "give away programs."	1 (N: 39)	23.1	*	30.8	15.4	5.1	5.1	0.0	20.5	65.2
			2 (N: 39)	33.3	7.7	*	12.8	12.8	12.8	5.1	15.4	70.9

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